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GUIDELINES FOR

NUTRITION CARE DURING PREGNANCY

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DEPARTMENT OF
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DEPARTMENT OF HEALTH AND HUMAN SERVICES
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PUBLIC HEALTH SERVICE

Dear Colleague:

In recent years research has shown nutrition services to be cost-effective in improving pregnancy outcomes. At the same time concepts of optimal nutrition care have changed as research has expanded our knowledge base. These guidelines were developed to assist community health care settings provide nutrition care to pregnant and postpartum women.

The guidelines are based on a review of the research literature, recommendations of authoritative professional organizations and agencies, and many years of clinical experience by the author in providing exemplary nutrition care to obstetric patients. The guidelines have been reviewed by clinical staff of three community health centers in our Region: Model Cities Health Center, St. Paul, Minnesota, Erie Family Health Center, Inc., and Winfield Moody (Near North) Health Center in Chicago, Illinois, as well as by Donald Dennis, M.D., Region V PHS, Director of Clinical Management. Center staffs have expressed enthusiasm for these practical guidelines. Each guideline covers the following areas: definition, rationale, management goal and guidelines, client education/counseling and monitoring. References for additional reading and verification of content, resource listings for additional information and educational materials, as well as an extensive appendix containing standards, assessment tools and patient education and information sheets are included to make the manual as useful as possible for busy clinicians.

We hope the guidelines will also be useful to clinic directors, administrators and board members in their task of assuring high quality health care services for the populations served by their Center.

We will appreciate receiving comments from you as you review and then utilize the guidelines in your setting.

Sincerely yours,

E. Frank Ellis, M.D.
Regional Health Administrator

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FORWARD

Nutrition and lifestyle habits are significant and modifiable factors affecting maternal and fetal health and well-being. Nutrition services have been shown to be cost-effective in improving pregnancy outcome. These guidelines were developed to assist community health care clinicians in providing optimal nutrition care to prenatal clients.

During the last several years many concepts of optimal nutrition care have changed as research has provided data on which to base practice. Examples of such changes include: weight gain in pregnancy, the importance of breast feeding, care of diabetes during pregnancy, appropriate vitamin/mineral supplementation, the relevance of life style as an essential consideration in provision of care, the value of exercise to patient's well-being and the importance of postpartum nutrition care.

Frequent nutrition assessment, education and counseling are essential components of obstetrical care and nutrition services are a responsibility of all health care providers serving maternal clients. Nutrition care should begin as early in pregnancy as possible and ideally during the preconceptional period. Clients especially at risk for nutrition related problems will require extensive nutrition counseling and monitoring of nutrition status. In some instances, the most appropriate provider of extensive and technical nutrition counseling will be the registered dietitian/nutritionist. The guidelines suggest referral to a dietitian in these instances. When a community health care setting does not employ or contract with a dietitian, referral arrangements might be made with dietitians in the hospital(s) providing delivery services, nutritionists in local health departments or dietitians in private practice in the community. Recent changes in Medicaid policies and reimbursement may allow more community health centers to employ or contract with dietitians to provide nutrition counseling.

The guidelines for nutrition care cover the following areas: definition, rationale, management goal and guidelines, client education/counseling and monitoring. A selected reference list relating to each guideline topic

is included on pages 55 to 63 and is followed by a resource list indicating national sources of education, information and guidance materials. An extensive appendix contains many practical tools for use in providing nutrition care. These tools are referenced in appropriate guidelines.

Although recent references have been used in the development of these guidelines and they are as close to "state of the art" as is possible, all users of these guidelines must review them carefully, adapt them to meet the needs in their particular setting, and constantly update them based on new research or new interpretations of the literature. The three ring binder format should allow for ease in page revision.

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Finally, we would like to express appreciation to all of those in the Region V Office and Heaith Start, Inc., who assisted with the financing and production of the manual.

NUTRITION ASSESSMENT

DEFINITION: Evaluation, correlation and comparison with standards: medical, obstetric, psychosocial, body measurement, dietary, laboratory and clinical parameters relevant to nutrition health.

RATIONALE: Nutrition status is one of the most important factors affecting pregnancy outcome. Nutrition assessment techniques help to identify clients at risk and provide the basis for nutrition management, monitoring and evaluation.

MANAGEMENT:

1.0 **GOAL:** To evaluate nutrition health and identify nutrition risks.

2.0 **GUIDELINES:**

2.1 **Determine nutrition-related medical/obstetric risk factors** (history/current).[1]

- •Medical conditions requiring dietary intervention or affecting nutrition status (e.g. Type I, Type II diabetes mellitus, hypertension, thyroid, renal, cardiovascular disease).
- •Medications affecting nutrition status (e.g. Dilantin, long-term oral contraceptive use).
- •Previous stillbirth, spontaneous abortion, premature, low-birth weight or small for gestational age infant.
- •Gestational diabetes, pregnancy induced hypertension, anemia.
- •Short interval (1 year) between current pregnancy and previous pregnancy/lactation.
- •Low gynecological age (chronological age minus age at menarche < 3 years).
- •Hyperemesis.
- •Physical discomforts (nausea, vomiting, heartburn, constipation, leg cramps, edema).
- •Multiple gestation.

2.2 **Determine relevant psychosocial, economic, lifestyle factors affecting nutrition status**.

- •Mental retardation, mental illness.
- •Low literacy, cognitive level.
- •History/current eating disorder (anorexia nervosa, bulimia nervosa, purging activities).
- •Emotional stress, depression, lack of support systems.
- •Negative attitude re: pregnancy.
- •Negative attitude re: weight gain.
- •Inadequate cooking facilities/food resources.

- Family/household participation in food assistance programs (WIC, food stamps, food shelves, food cooperatives, meal programs, free or reduced cost school lunch).
- Smoking, alcohol, drug use (see appendix A).
- Employment/school (type, schedule).
- Physical activity level.

2.3 **Determine relevant body measurements.**[2]

- **Height**
  - Use staticmeter (wall-mounted stature measuring board) with movable head piece or steel measuring tape attached to vertical flat surface (e.g. wall without baseboard) and hardwood block.
  - Client stands without shoes against measuring device (feet flat, heels and knees together, toes slightly apart, legs and back straight and heels, buttocks, shoulders, head touching vertical measuring device. Eyes are directed ahead and corner of eye and top of ear canal are in horizontal alignment).
  - As client inhales deeply and holds breath, lower movable headboard or hardwood block squared at right angle against the wall to crown of head and before moving, read to nearest 1/4 inch.
  - Use foot stool if client is taller than measurer.

  NOTE: Do not use measuring rod attached to platform scale to measure height.

- **Wrist circumference**
  - With palm facing up, measure right wrist with insertion tape or non-flexibie measuring tape distal to styloid process (towards fingers from wrist bone).
- **Determine body frame size** (see appendix B).
- **Weight** (each visit).
  - Use frequently calibrated beam balance scale with non-detachable weights (client is ideally weighed on same scale at each visit).
  - Return scale to zero before each weighing and assure that scale is balanced.
  - Weigh client in light indoor clothing, without shoes, coat or purse.
  - Record weight to nearest 1/4 lb.
  - Plot weight on prenatal weight gain grid at each visit (see appendix C-1).
  - Determine prepregnant weight status (see appendix D).

* Evaluate weight loss prior to conception (voluntary/involuntary, amount of loss, time frame, method of loss).
* Evaluate weight gain pattern at each visit.
  Excessive weight gain: > 8 lbs. per month (adult normal prepregnant weight).
  Inadequate weight gain < 3 lbs. per month (normal prepregnant weight).

2.4 **Obtain relevant laboratory data.**

•**Hemoglobin/hematocrit** monthly.
* Acceptable: hemoglobin ≥ 11.0 g/dl; hematocrit ≥ 33%

•**Qualitative urinary albumin, glucose.**
* Acceptable 0-trace.
  NOTE: Normal changes in renal threshold may result in benign glycosuria.

•**Urinary ketones** (Type I diabetes mellitus, weight loss, severe vomiting, hyperemesis) at each visit.

•**Glucose screen:** Those at high risk at initial visit and others at 24-28 week's gestation (see glucose screen guidelines).

2.5 **Evaluate body sites for clinical signs which may be suggestive of nutrition concerns.**[4]

•Skin
* Pallor (iron deficiency).
* Multiple small bruises (vitamin C deficiency).
* Decreased turgor (dehydration).
* Muscle wasting (protein deficiency).
* Minimal subcutaneous fat (energy deficiency).

•Eyes
* Pale conjunctivae (iron/folate deficiency).

•Mouth
* Bleeding gums (vitamin C deficiency).
* Enamel erosion/caries (purging).

•Face/Neck
* Enlarged parotid (purging).
* Enlarged thyroid (hypothyroidism).

•Nails
* Spooned shaped, ridged (iron deficiency).

NOTE: Clinical signs of nutrition problems are non-specific and may be caused by non-nutrition related factors. Although rare, outward signs of nutrition deficiency may occur in clients with substance abuse, eating disorders, or long-term nutritional deprivation.

2.6 **Evaluate quality and quantity of food intake and other relative dietary factors.**

- •Eating habits before pregnancy.
- •Appetite.
- •Use of nutrition supplements.
- •Use of iodized salt.
- •Caffeine intake.
- •Use of health foods/organic foods/food fads/herbal remedies.
- •Vegetarianism.
- •Cultural/ethnic influences on eating pattern.
- •Pica practices (ingestion of inappropriate substances).
- •Food preferences.
- •Food allergies/intolerances (e.g. lactose).
- •Infant feeding plans (breast/bottle feeding).
- •Current eating pattern (at least once per trimester)
  - * Through interview, in a nonjudgmental manner, or if necessary client administered: 24-hour recall plus food frequency with comparison to daily food guide for pregnancy (see appendix E, F).

2.7 **Identification of clients at significant nutrition risk** (those in need of intensive nutrition care and monitoring, including referral to nutritionist/registered dietitian).

- •Adolescent < 3 years postmenarche (usually under 15 years of age).
- •Parity > 4/pregnancy or breast feeding within past year.
- •Prepregnancy weight 90% or less of standard weight for height/low gestational weight gain/weight loss.
- •Prepregnancy weight 150% or more of standard weight for height/high gestational weight gain.
- •Anemia (hemoglobin < 11.0 g/dl; hematocrit < 33%).
- •Active eating disorder.
- •Hyperemesis.
- •Diabetes (Type I, Type II, gestational).
- •Smoking, alcohol, drug use.
- •Total vegetarianism.
- •Pica.
- •Inadequate food resources.
- •Excessive vitamin/mineral supplementation.
- •Inferior dietary intake (lacking one or more basic food groups or < 1/2 recommended servings from each food group).

NUTRIENT SUPPLEMENTATION

DEFINITION: Prenatal vitamin/mineral; iron; folate; calcium supplements.

RATIONALE: Average dietary intakes and body stores cannot meet the higher need for iron in pregnancy (3.0 mg elemental iron per day).[1] While increased demands for other nutrients can be met through dietary sources, they frequently are not, particularly among low income women and adolescents.[2,3] Excess vitamins/minerals may have adverse effects on fetal development.

MANAGEMENT:

1.0 GOAL: To assure an adequate intake of nutrients for the maintenance of maternal stores and the promotion of optimal fetal growth and development while preventing nutrient excesses or toxicities.

2.0 GUIDELINES:

2.1 Provide all pregnant clients with an iron supplement (30 mg. elemental iron per day).[1]

2.2 Provide iron supplements to clients with sickle cell disease **only** if there is co-existing iron deficiency (60 mg elemental iron per day.[4]

2.3 Provide all pregnant clients who do not regularly consume fruit/juices, whole grain/fortified cereals or green vegetables with a folate supplement (300 ug per day).[1]

2.4 Provide 1 mg folate b.i.d. to clients with sickle cell disease.[4]

2.5 Provide a prenatal vitamin and mineral supplement by the second trimester to all clients who do not regularly consume a nutritionally adequate diet or who have a multiple gestation, smoke heavily or abuse alcohol/drugs which:[1,2]

- Contains a wide range of vitamins and minerals at low potency (see appendix G-1).
- Does not contain calcium phosphate, which decreases iron absorption.
- Preferably does not contain artificial colors.
- Provides approximately 30 mg elemental iron and 300 ug folate.

NOTE: Most prenatal vitamins currently supply .8-1.0 mg folate and 60-65 mg elemental iron; the National Academy of Sciences does not recommend preformed vitamin A during the first trimester.[1]

2.6 If client has difficulty swallowing large supplements, provide one of the following:

- Scored prenatal vitamin supplement.
- Separate iron, folate supplements or, if necessary, chewable or liquid iron (see appendix G-2).

- Chewable pediatric vitamin supplement containing folate, zinc, and 30 mg elemental iron.

2.7 Provide calcium supplement (see appendix G-3) to clients who cannot consume sufficient amounts of dairy products.

2.8 Avoid exceeding recommended calcium dosage to prevent complications such as calcification of soft tissues, renal calculi.

3.0 CLIENT EDUCATION/COUNSELING:

3.1 Recommend taking prenatal vitamin/mineral supplement at bedtime to enhance iron absorption.

3.2 Recommend taking prenatal vitamin/mineral supplement with food if there is gastrointestinal intolerance.

3.3 Caution against taking prenatal vitamin/mineral supplement with substances which may decrease iron absorption (eg. milk, antacids, calcium supplements, coffee, tea, bran).

3.4 Instruct to take calcium supplement with large glass of water.

3.5 Advise to take calcium supplement with meals to enhance absorption.

3.6 Caution against bone meal (animal bone powder), which may contain lead.

3.7 Remind that vitamin/mineral supplements do not lessen the need for consuming a nutritionally adequate diet.

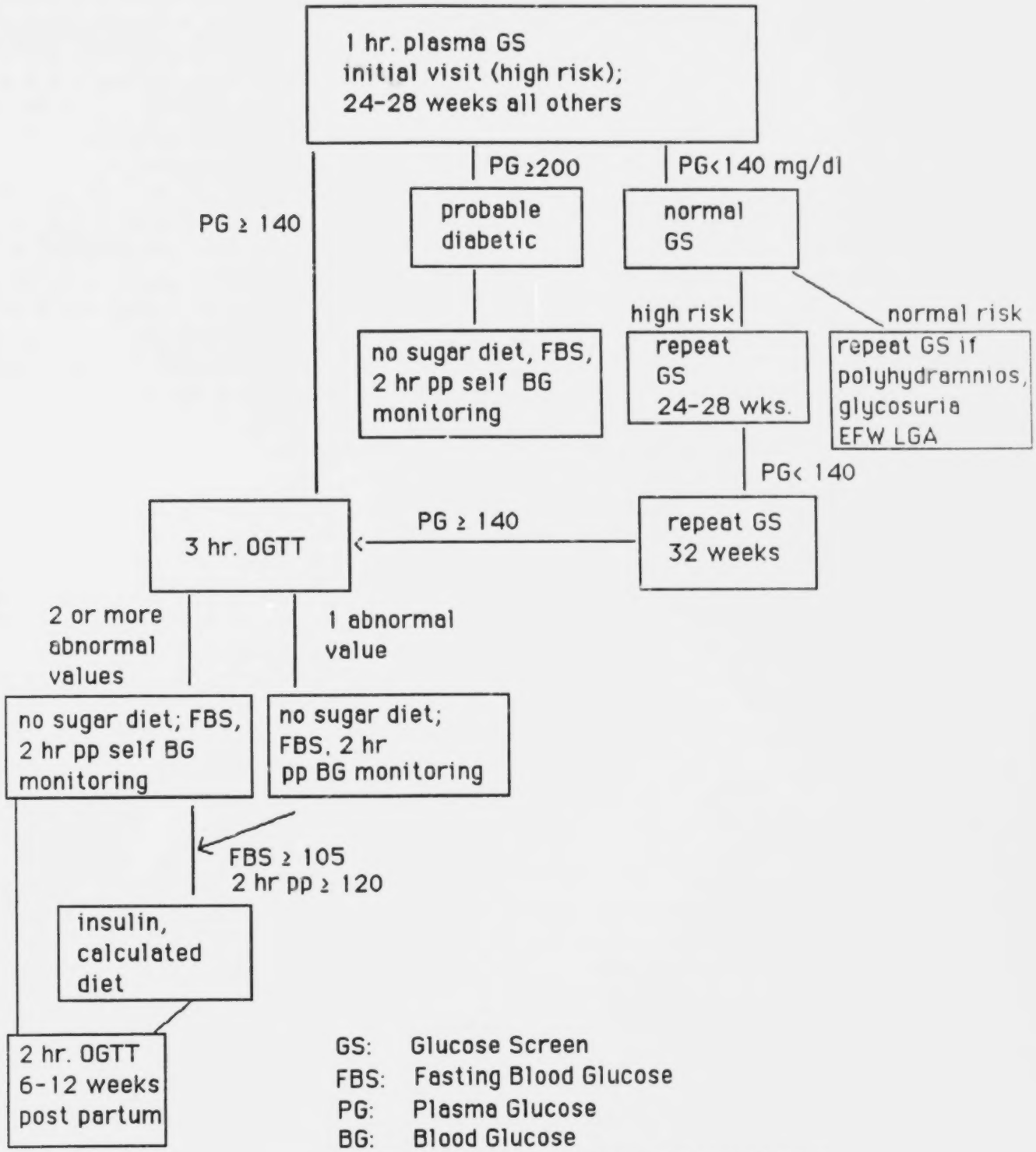
3.8 Caution against self-prescribed vitamin/mineral supplements or exceeding prescribed dosages of vitamin/mineral supplements.

3.9 Caution to avoid toxic herbs (eg. comfrey, lobelia, sassifras).[5]

4.0 MONITORING:

4.1 Monitor compliance with vitamin/mineral supplementation at each visit.

Diabetes Mellitus: Diagnosis and Management in Pregnancy


1 hr. plasma GS
initial visit (high risk);
24-28 weeks all others
PG ≥200
PG<140 mg/dl
PG ≥ 140
probable diabetic
normal GS
high risk
normal risk
no sugar diet, FBS, 2 hr pp self BG monitoring
repeat GS 24-28 wks.
repeat GS if polyhydramnios, glycosuria EFW LGA
PG< 140
3 hr. OGTT
PG ≥ 140
repeat GS 32 weeks
2 or more abnormal values
1 abnormal value
no sugar diet; FBS, 2 hr pp self BG monitoring
no sugar diet; FBS, 2 hr pp BG monitoring
FBS ≥ 105
2 hr pp ≥ 120
insulin, calculated diet
2 hr. OGTT 6-12 weeks post partum

GS: Glucose Screen
FBS: Fasting Blood Glucose
PG: Plasma Glucose
BG: Blood Glucose
OGTT: 3 Hour Oral Glucose Tolerance Test
PP: Postprandial
EFW: Estimated Fetal Weight
LGA: Large for Gestational Age

GLUCOSE SCREEN/ORAL GLUCOSE TOLERANCE TEST

DEFINITION: Detection of glucose intolerance of variable severity precipitated by or first recognized in pregnancy.[1]

RATIONALE: Gestational diabetes mellitus (GDM) occurs in up to 5% of all pregnancies.[2] Undiagnosed or casually managed GDM is associated with higher rates of perinatal mortality and morbidity.[3,4] Failure to screen all pregnant clients for GDM may cause more than 50% of cases to be missed.[3] Capillary blood (finger-stick) glucose analysis, using a reflectance meter or glucose-oxidase impregnated stick cannot be used for glucose screen or oral glucose tolerance test. Glycosylated hemoglobin determination cannot be used to diagnose GDM.

GUIDELINES:

1.0 Provide all pregnant clients (not already known to be diabetic) with a **glucose screen** (50 g glucose challenge).[5]

- Screen those at **high risk** for GDM at **initial visit** (1 or more of the following)
  History: GDM, unexplained pregnancy loss, delivery of infant > 4,000 g. Current: polyhydramnios, estimated fetal weight large for gestational age, marked/persistent glycosuria, strong family history of diabetes mellitus, significant obesity.
  * If normal, repeat at 24 to 28 weeks.
  * If still normal, repeat again at 32 weeks.[6]
- Screen **all others** between **24 to 28 weeks** gestation.[5]
  * If normal, repeat glucose screen if client develops glycosuria or polyhydramnios, or if the estimated fetal weight appears large for gestational age.

1.1 Client Education: Purpose of and procedure for glucose screen (see appendix H-1).

1.2 **Procedure**: One hour glucose screen. [1]

- Client Preparation: NONE (time of day, previous food intake not considered).
- Administer 50 g glucose in at least 200 ml water, which client drinks within a 5 minute period.
- Client refrains from food, beverages (other than water).
- Client remains quietly seated during test.
- Determine venous plasma glucose level at 1 hour after client **began** to drink glucose solution.

1.3 **Interpretation**:

- Abnormal glucose screen: venous plasma glucose ≥140 mg/dl.[1]

2.0 Manage clients with glucose screen value > 200 mg/dl as probable gestational diabetic.

3.0 Provide client with 3 hour oral glucose tolerence test (OGTT) if glucose screen value 140-199 mg/dl

3.1 Client Education: Importance of and procedure for OGTT (see appendix H-2).

3.2 Procedure: Three hour OGTT[1]

- Client preparation:
  Unrestricted activity and carbohydrate intake ≥ 150g/day for 3 days prior to test (see appendix H-2). Overnight fast of 8-14 hours.
- Verify that client had adequate carbohydrate intake prior to test.
- Determine morning fasting venous plasma glucose level.
- Administer 100 g glucose in at least 400 ml water which client drinks within a 5 minute period.
- Client refrains from food, beverages (other than water), cigarettes, gum during test.
- Client remains quietly seated during test.
- Determine venous plasma glucose level at 1, 2, and 3 hours after client **began** to drink glucose solution.
  NOTE:
  - Do not determine 1/2 hour venous plasma glucose level.
  - Do not determine urine glucose levels.

3.3 **Interpretation**:

- Abnormal OGTT (indicating GDM) = 2 or more of the following venous plasma glucose values:
  - Fasting ≥ 105 mg/dl
  - 1-Hour: ≥ 190 mg/dl
  - 2-Hour: ≥ 165 mg/dl
  - 3-Hour: ≥ 145 mg/dl
- Glucose intolerance = one venous plasma glucose value exceeding those listed above.

GLUCOSE INTOLERANCE

DEFINITION: One abnormal value on three hour oral glucose tolerance test (OGTT).

RATIONALE: One abnormal value on 3-hour OGTT in pregnancy has been related to higher rates of pre-eclampsia, eclampsia, and fetal macrosomia. Good blood glucose control, usually achieved by dietary management alone, is likely to improve pregnancy outcome.[7]

MANAGEMENT:

1.0 Goal:

- To maintain maternal plasma glucose levels within near normal ranges, avoiding hypo- and hyperglycemia, while promoting optimal maternal and fetal nutrition.

Fasting: 60-90 mg/dl

2-Hour postprandial: ≤ 120 mg/dl

2.0 Guidelines:

2.1 Client limits simple sugars.

2.2 Client regularly consumes 3 meals and 2-3 snacks per day consistent with basic food guide for pregnancy (see appendix F-2).

2.3 Client distributes energy and carbohydrate intake throughout the day.

2.4 Client gains an appropriate amount of weight.

2.5 Client uses aspartame (Equal, Nutrasweet) in moderation (≤4 servings/day).

Client Education:

3.1 Stress importance of limiting simple sugars.

3.2 Educate regarding foods of high sugar content and appropriate substitutions (see appendix I).

3.3 Teach food label reading and instruct to limit foods with sugar as one of the first 2 ingredients (sugar, dextrose, corn syrup, etc.)

3.4 Stress importance of regular meals and balanced intake of energy and carbohydrate throughout the day.

3.5 Provide dietary counseling to achieve recommended eating pattern considering ethnic background and economic limitations.

3.6 Provide dietary counseling, as indicated, to achieve appropriate weight gain pattern.

4.0 Monitoring:

4.1 Determine fasting and 2-hour postprandial venous plasma glucose levels monthly.

4.2 Evaluate compliance with dietary recommendations.

4.3 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C-1).

GESTATIONAL DIABETES MELLITUS (GDM)/TYPE II DIABETES MELLITUS (DM): NOT REQUIRING INSULIN

DEFINITION: Two or more abnormal values on three hour oral glucose tolerance test or pre-existing Type II diabetes mellitus.

RATIONALE: Uncontrolled GDM and Type II DM are associated with higher rates of pre-eclampsia, prematurity, macrosomia and neonatal metabolic abnormalities. Good maternal blood glucose control, achieved primarily through dietary management, results in perinatal risks similar to those of normal pregnancy.[3,4]

MANAGEMENT

1.0 Goal: To maintain maternal plasma glucose levels within near-normal ranges (avoiding hypo- and hyperglycemia), while promoting optimal maternal and fetal nutrition.[1,3,8]

- **Plasma glucose:**

Fasting:	60-90 mg/dl
Before meals and bedtime snack	60-105 mg/dl
After meals (2 hrs.)	≤ 120 mg/dl

- **Glycosylated hemoglobin:** within normal ranges (usually < 7.5%).

2.0 GUIDELINES:

2.1 Client avoids simple sugars (see appendix L-1).
2.2 Client limits dietary fat intake.
2.3 Client regularly consumes 3 meals and 2-3 snacks per day consistent with daily food guide for pregnancy (see appendix F-2).
2.4 Client distributes energy and carbohydrate intake throughout day.
2.5 Client avoids saccharin and limits sorbitol, mannitol and xylitol.
2.6 Client uses aspartame (Equal, Nutrasweet) in moderation (≤4 servings/day).
2.7 Client moderately increases dietary fiber intake.
2.8 Client gains an appropriate amount of weight.
2.9 Client moderately increases physical activity (e.g. walking after meals).
2.10 Client determines blood glucose 4-6 times per day with home blood glucose monitoring system (reflectance meter or glucose oxidase impregnated stick)
NOTE: Urinary glucose determinations are not useful.
2.11 Institute insulin therapy (human) if, on two or more occasions within 1-2 weeks, venous plasma glucose values remain elevated:[1]
- Fasting: ≥ 105 mg/dl

- 2-Hour Postprandial: ≥ 120 mg/dl

NOTE: Oral hypoglycemic agents are not appropriate for use during pregnancy.

3.0 CLIENT EDUCATION/COUNSELING

3.1 Emphasize importance of strict maternal blood glucose control.

3.2 Stress importance of avoiding simple sugars and limiting dietary fat intake.

3.3 Educate re: foods which contain simple sugars and appropriate substitutions (see appendix I).

3.4 Teach food label reading and instruct to avoid foods with sugar as one of the first 2 ingredients (sugar, dextrose, corn syrup, honey etc.).

3.5 Provide dietary counseling to achieve recommended eating pattern, considering ethnic background and economic limitations.

3.6 Teach home blood glucose monitoring technique (fasting, prior to meals or 2 hours after meals, bedtime).

- Instruct to keep record of results and bring to each clinic visit.

3.7 Provide dietary counseling, as indicated, to achieve appropriate weight gain pattern.

3.8 Instruct to keep periodic food diary and bring to clinic visit (see appendix E).

4.0 MONITORING

4.1 See client every 2 weeks.

4.2 Determine random blood glucose level at each visit (evaluate according to time of last meal).

NOTE: The correlation of capillary blood glucose values with venous plasma glucose values is sufficient to allow use of same standards.[9]

4.3 Evaluate client compliance with eating plan and monitoring techniques at each visit.

4.4 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

4.5 Determine glycosylated hemoglobin q 2-4 weeks.

4.6 Evaluate client's food and blood glucose record at each visit.

INSULIN USE IN PREGNANCY

DEFINITION: Type I diabetes mellitus or Type II diabetes mellitus/-gestational diabetes mellitus which cannot be controlled by diet alone (venous plasma glucose levels ≥ 105 mg/dl fasting or ≥120 mg/dl 2-hours postprandial).

RATIONALE: Diabetes mellitus (DM) is associated with higher rates of congenital anomalies if uncontrolled during the first 6-8 weeks gestation. If not well controlled throughout pregnancy, macrosomia, and in some cases, intrauterine growth retardation or intrauterine death may occur.[3] Dietary management, the primary therapy of DM, is similar for pre-existing and gestational DM requiring insulin.

MANAGEMENT:

1.0 GOAL: To achieve strict blood glucose control while promoting optimal maternal and fetal nutrition and avoiding hypoglycemia.[1,3,8]

- **Plasma Glucose:**
  Fasting: 60-90 mg./dl.
  Before meals and bedtime snack: 60-105 mg/dl
  After meals (2 hours): ≤ 120 mg/dl
  Hypoglycemia avoided: not < 60 mg/dl
- **Glycosylated Hemoglobin:** Within normal ranges (most laboratories < 7.5%).

2.0 GUIDELINES:

2.1 Refer client to high risk medical care and nutritionist/-registered dietitian.

2.2 Refer to public health nurse.

2.3 Coordinate insulin therapy with regular eating pattern (30 minutes prior to meal).

2.4 Client determines blood glucose 4-6 times per day with home blood glucose monitoring system (reflectance meter or glucose-oxidase impregnated stick).

NOTE: Urinary glucose determinations are not useful during pregnancy.

2.5 Provide calculated diabetic diet (see appendix J).

- Assure adequate energy intake:

Prepregnant weight status (see appendix D).	Kcal/Kg/day*	Kcal/lb/day*
Normal range	36	16
Underweight	45-50	20-23
Obese	25-30	11-20
Adolescent (< 15 yrs. of age)	45	20

*Pregnant body weight

(Modify as needed to achieve normal weight gain pattern.)

- Provide energy as 50% carbohydrate, 30% fat, 20% protein.
- Distribute carbohydrate: 25% morning, 25% mid day, 5% mid afternoon, 30% evening, 15% bedtime.

2.6 Client regularly consumes 3 meals and 2-3 snacks per day consistent with daily food guide for pregnancy.
2.7 Client avoids simple sugars.
2.8 Client limits dietary fat intake.
2.9 Client avoids saccharin and limits sorbitol, mannitol and xylitol.
2.10 Client uses aspartame (Equal, Nutrasweet) in moderation, i.e., ≤ 4 servings per day.
2.11 Client moderately increases dietary fiber intake.
2.12 Client gains an appropriate amount of weight.
2.13 Client moderately increases physical activity (e.g. walking after meals).
2.14 Client determines and records urinary ketones on first morning urine sample; and with any blood glucose value > 150 mg/dl (Type I).

3.0 CLIENT EDUCATION/COUNSELING:

3.1 Emphasize importance of strict maternal blood glucose control.
3.2 Stress importance of avoiding simple sugars.
3.3 Educate re: foods which contain simple sugars and appropriate substitutes (see appendix I).
3.4 Teach food label reading and instruct to avoid foods with a sugar as one of the first 2 ingredients (sugar, dextrose, corn syrup, etc.).
3.5 Provide dietary counseling to achieve recommended eating pattern, considering ethnic background and economic limitations.
3.6 Emphasize importance of consuming regular amounts of food at regular times, including bedtime snack and breakfast.
3.7 Teach home blood glucose monitoring technique

- Instruct to determine blood glucose level 4-6 times/day (fasting, prior to meals or 2-hours after meals, bedtime).
- Instruct to keep record of results and bring to each clinic visit.

3.8 Instruct to keep food diary and bring to each clinic visit (see appendix E).
3.9 Provide dietary counseling, as indicated, to achieve recommended weight gain pattern.
3.10 Teach urinary ketone determination technique (Type I).
3.11 Educate re: symptoms of hypoglycemia and treatment (see appendix K).
3.12 Instruct to call caregiver if blood glucose abnormalities occur: fasting ≥105 mg/dl, any other >150 mg/dl or any < 60 mg/dl

4.0 MONITORING:

4.1 See client q 1-2 weeks.

4.2 Determine random blood glucose level at each visit (evaluate according to time of last meal).

4.3 Determine urinary ketone level at each visit (Type I).

4.4 Evaluate client compliance with eating plan and monitoring techniques at each visit.

4.5 Determine weight and plot on prenatal weight grid at each visit (see appendix C).

4.6 Determine glycosylated hemoglobin q 2-4 weeks.

4.7 Evaluate client's food record, record of blood glucose and urinary ketone record (Type I) at each visit.

NOTE: The correlation of capillary blood glucose values with venous plasma glucose values is sufficient to allow use of same standards.[9]

POSTPARTUM FOLLOWUP GESTATIONAL DIABETES:

DEFINITION: Gestational diabetes during last pregnancy.
RATIONALE: Differentiation between gestational diabetes, pre-existing diabetes or impaired glucose tolerance is based on re-evaluation of carbohydrate status in the non-gravid state. Gestational diabetes and impaired glucose tolerance are associated with higher risk for the development of diabetes mellitus (DM) than that of the general population. More than one half of gestational diabetics, particularly if obese, may develop Type II DM within 12 years.[1]
GUIDELINES:

1.0 Provide all clients who had gestational diabetes with a **2-hour oral glucose tolerance test** (OGTT) at 6-12 weeks postpartum.
- 1.1 Client Education: purpose of and procedure for 2-hour OGTT.
- 1.2 Procedure: 2-hour OGTT[2]
  - Client Preparation:
    - *Unrestricted activity and carbohydrate intake ≥ 150 g/day for 3 days prior to test (see appendix H-2).
    - *Overnight fast of 8-14 hours.
  - Verify that client had adequate carbohydrate intake prior to test.
  - Determine morning fasting venous plasma glucose level.
  - Administer 75 g glucose in at least 300 ml of water which client drinks within a 5 minute period.
  - Client refrains from food, beverages (other than water), cigarettes, and gum during test.
  - Client remains quietly seated during test.
  - Determine venous plasma glucose level at 1/2 hour, 1 hour and 2 hours after client **began** to drink glucose solution.

2.0 Interpretation:
- 2.1 **Abnormal OGTT** (Diagnosis Type II diabetes mellitus):
  - Fasting venous plasma glucose ≥ 140 mg/dl **OR**
  - 2 Hour **AND** at least one other value (1/2 hr, 1 hr, 1-1/2 hr, 2 hr) value ≥ 200 mg/dl.
- 2.2 **Impaired Glucose Tolerance** (OGTT values between normal and diabetic - client not diabetic).[2]
  - Fasting venous plasma glucose: <140 mg/dl
  - 2 Hour: 140-200 mg/dl
  - 1/2 Hour, 1 hour and 1-1/2 hour ≥ 200 mg/dl
- 2.3 **Previous abnormality of glucose tolerance (Gestational Diabetes Mellitus):**
  - Normal 2 hour OGTT.[2]

DIABETES MELLITUS MANAGEMENT

3.0 GOAL: To maintain normal blood glucose levels.

4.0 GUIDELINES:

4.1 Refer client to diabetes specialist and nutritionist/registered dietitian.

4.2 Client achieves/maintains standard weight for height (see appendix D).

4.3 Client avoids simple sugars.

4.4 Client engages in regular exercise.

4.5 Client regularly consumes 3-5 meals/snacks per day which are consistent with daily food guide for women and are lower in cholesterol, saturated fat and sodium and higher in fiber content (see appendix F).

4.6 Client achieves strict blood glucose control for 3 months prior to conception.

4.7 Institute oral hypoglycemic agent or insulin if:
Fasting blood glucose ≥ 140 mg/dl or post-prandial blood glucose ≥ 175 mg/dl[3]

5.0 Client Education/Counseling:

5.1 Emphasize importance of good blood glucose control.

5.2 Stress importance of avoiding simple sugars and limiting saturated fat and cholesterol intake.

5.3 Review foods which contain simple sugars, saturated fat and cholesterol and appropriate substitutions.

5.4 Review food label reading.

5.5 Provide dietary counseling to achieve recommended eating pattern, considering ethnic background and economic limitations.

5.6 Provide dietary counseling, as indicated, to achieve standard weight/height.

5.7 Encourage regular exercise.

IMPAIRED GLUCOSE TOLERANCE/PREVIOUS ABNORMALITY OF GLUCOSE TOLERANCE MANAGEMENT:

6.0 GOAL: To prevent development of type II diabetes mellitus.

7.0 GUIDELINES:

7.1 Client achieves/maintains standard weight for height (see appendix D).

7.2 Client engages in regular exercise.

7.3 Client limits simple sugars (impaired glucose tolerance).

7.4 Client obtains yearly fasting venous plasma glucose determination.

7.5 Monitor future pregnancy carefully for development of gestational diabetes.

8.0 CLIENT EDUCATION/COUNSELING:

8.1 Provide dietary counseling, as indicated, to achieve standard weight for height.

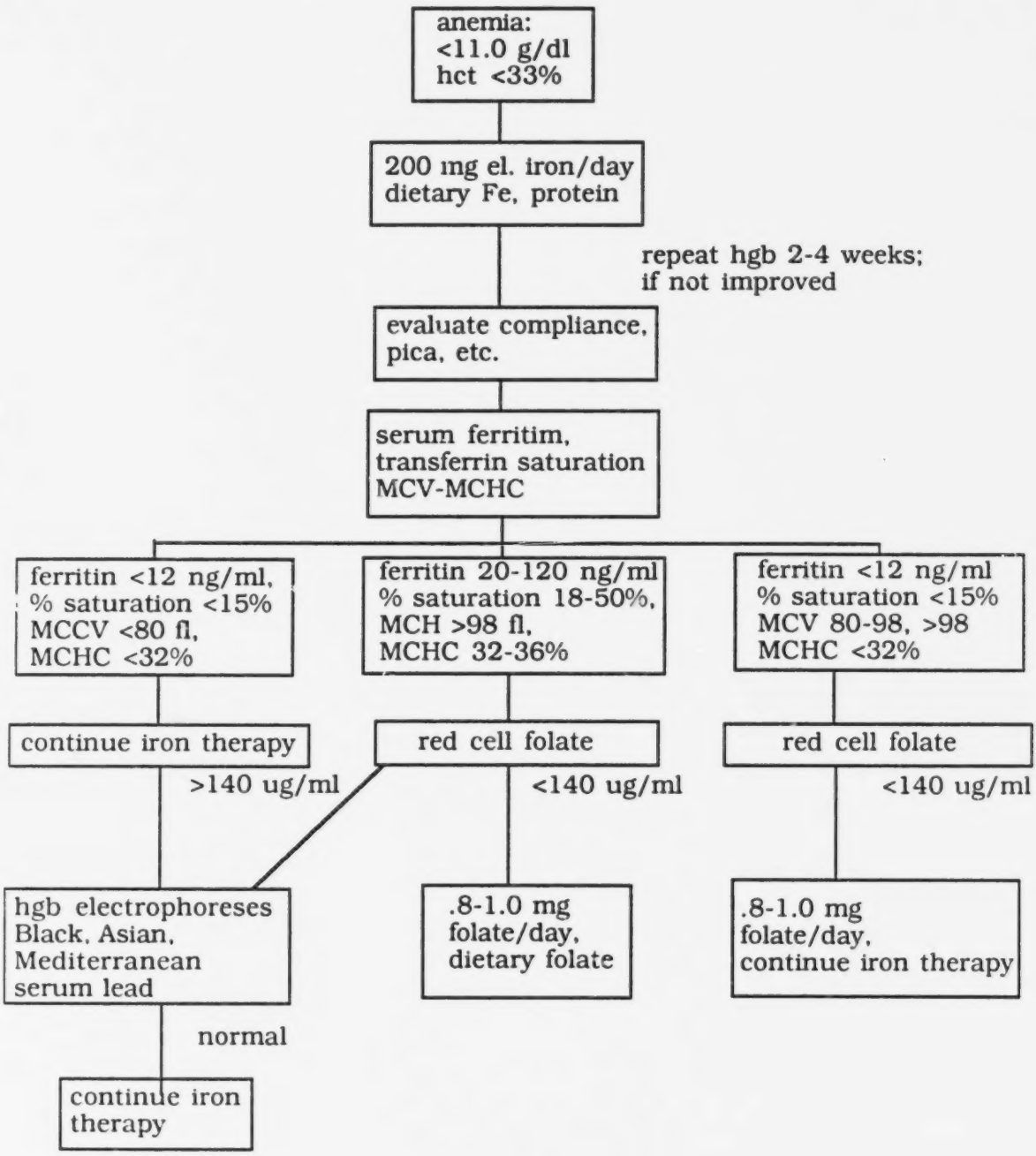
8.2 Encourage regular exercise.

8.3 Stress importance of limiting simple sugars.

8.4 Review foods which contain simple sugars and appropriate substitutions (impaired glucose tolerance).

8.5 Stress importance of obtaining yearly blood glucose evaluation.

Nutrition-Related Anemia: Management



NUTRITION RELATED ANEMIA

DEFINITION:

Hemoglobin: < 11.0 g/dl
Hematocrit: < 33%

NOTES: Normal hemoglobin and hematocrit levels are approximately .5 g/dl lower in Blacks. [1] Cigarette smoking increases hemoglobin and hematocrit levels approximately .3 g/dl.[2] Although recent CDC guidelines indicate an anemia cutoff of 10.5 g/dl during the second trimester, we are using 11.0 g/dl throughout pregnancy for simplicity and because lower income women are at higher risk for anemia.

RATIONALE: Risks of anemia in pregnancy include: decreased maternal well-being (fatigue, headache, dizziness, shortness of breath), reduced infant birth weight, postpartum hemorrhage, transfusion therapy, infection, and compromised fetal/maternal postpartum iron status.[1,3-5] Anemia in pregnancy is most frequently caused by iron deficiency. Folate deficiency or a combination of iron and folate deficiency anemia may also occur. Vitamin B_{12} deficiency may rarely occur in total vegetarians.

MANAGEMENT:

1.0 GOAL: To correct deficient hemoglobin level and replenish iron/folate stores.

2.0 GUIDELINES:

2.1 Increase oral iron supplementation to 200 mg elemental iron/day (including iron content of prenatal vitamin) unless client has hemoglobinopathy[6] (see appendix G-2).

- Do not exceed dosage of 200 mg elemental iron/day since higher levels may decrease zinc absorption.[7]
- Use ferrous sulfate or ferrous fumarate tablets for most effective absorption and cost efficiency.
- Use ferrous gluconate, timed release, or enteric-coated capsules or tablets if client complains of gastrointestinal intolerance (heartburn, nausea, abdominal cramps, constipation, diarrhea).

2.2 Supplement with 15 mg zinc and 2 mg copper (most easily accomplished with prenatal vitamin and mineral supplements).[8]

2.3 Use stool softner (e.g. Docusate Sodium) if client complains of significant constipation.

2.4 Provide alternative form of iron if client will not swallow tablet:

- Liquid iron (mixed with water or juice and drunk through straw to avoid staining teeth).

- Chewable iron
- Timed released capsules opened and mixed with soft food (avoid crushing or chewing).

NOTE: Parenteral iron is no more effective than oral iron and may be associated with adverse side effects.

2.5 Reduce iron dosage to 30-60 mg elemental iron when normal hemoglobin level is achieved and maintained.

2.6 If hemoglobin level is not improved after 4 weeks of iron therapy:
- Refer to nutritionist/registered dietitian.
- Evaluate compliance with iron therapy and prenatal vitamin supplement (do pill count if indicated).
- Determine if client is taking iron as directed.
- Evaluate dietary protein intake.
- Evaluate excess hemodilution (e.g. rapid weight gain, edema).

2.7 If no apparent reason for failure of hemoglobin level to improve, do further laboratory assessment:
- Serum ferritin
- Mean corpuscular volume (MCV)
- Mean corpuscular hemoglobin concentration (MCHC)

2.8 If normal ranges, determine red cell folate level.

2.9 Interpretation:

Laboratory values indicating deficiency.[9]

	Iron	Folate
Serum ferritin:	< 12	20-120 (ng/ml)
Transferrin: saturation (%)	< 15	18-50
MCV (fl):	< 80	> 98
MCHC (%):	< 32	32-36
Red cell folate: (ug/ml)	150-800	< 140

2.10 If evidence of folate deficiency, give 800-1,000 ug folate/day.
- Continue for 2 months postpartum.
- Encourage increased dietary intake of folate (see appendix).

2.11 If no evidence of iron/folate deficiency, evaluate:
- Lead toxicity
- Infection
- Hemoglobin electrophoresis (Black or of Asian/Mediterranean decent).

3.0 CLIENT EDUCATION/COUNSELING

3.1 Explain significance of iron deficiency anemia and importance of compliance with therapy.

3.2 Inform that iron may darken stools.

3.3 Caution to keep iron supplements out of reach of children.
3.4 Advise to gradually increase dosage over several days to minimize gastrointestinal intolerance.
3.5 Instruct to divide dosage throughout day.
3.6 Advise to take between meals or at bedtime.
3.7 If gastrointestinal intolerance, advise to take with meals and include meat, fish or poultry and vitamin C source.
3.8 Advise to take with citrus or other vitamin C-containing juice.

PREGNANCY INDUCED HYPERTENSION

DEFINITION: Pregnancy-induced hypertension (PIH)/pre-eclampsia/-eclampsia. Increments in blood pressure (bp) ≥ 30 mm hg systolic; ≥ 15 mm hg diastolic; systolic bp ≥ 140 mm hg; diastolic bp ≥ 90 mm hg (any of these on 2 or more occasions at least 6 hours apart).[1]

RATIONALE: PIH and pre-eclampsia/eclampsia are associated with an inadequate expansion of plasma volume and compromised uteroplacental perfusion[2] despite the presence of edema. Restriction of dietary sodium will not improve, and may worsen the course of these conditions by further decreasing plasma volume and placental perfusion. Sodium restriction may also result in sodium depletion and stress the sodium conserving system.[3,4] Although deficiencies of vitamin B_6, protein, calcium and zinc have been implicated in the pathogenesis of PIH, intake of these nutrients above those recommended for normal pregnancy are not currently indicated.

MANAGEMENT:

1.0 GOAL: To prevent further contraction of plasma volume and meet maternal and fetal nutrient needs.

2.0 GUIDELINES:

- 2.1 Refer client to high risk care center (pre-eclampsia).
- 2.2 Do not restrict dietary sodium unless co-existing cardiac failure.[1,2,4,6]
- 23 Client rests/sleeps in left lateral recumbent position to reduce uterine pressure on the inferior vena cava.
- 2.4 Client consumes fluids liberally (e.g. 10-12 cups per day).
- 2.5 Client limits caffeine intake to ≤ 1 serving per day.
- 2.6 Client consumes meals/snacks consistent with daily food guide for pregnancy (see appendix F).
- 2.7 Replace dietary protein lost in association with proteinuria:
  * Additional .5 g/kg/day if proteinuria ≥ 3+.[7]
- 2.8 Provide prenatal vitamin/mineral supplement containing 15 - 20 mg zinc (1 qd).

3.0 CLIENT EDUCATION/COUNSELING:

- 3.1 Stress importance of compliance with bedrest and dietary recommendations.
- 3.2 Advise use of iodized salt to taste.
- 3.3 Provide dietary counseling, considering ethnic background and economic limitations, to achieve recommended eating pattern.
- 3.4 Advise liberal fluid intake (10-12 cups non-caffeine containing beverages/day).

4.0 MONITORING:

4.1 See q 1-2 weeks.

4.2 Measure blood pressure (large cuff if upper arm measurement ≥ 35 cm) at each visit.[8]

4.3 Evaluate urinary protein at each visit.

4.4 Evaluate presence of edema at each visit.

4.5 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

4.6 Evaluate compliance with:

* Bedrest
* Dietary recommendations
* Prenatal vitamin/mineral supplementation.

WEIGHT MANAGEMENT: ADULT NORMAL PREPREGNANT WEIGHT

DEFINITION: Prepregnant weight 91-119% of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables, adjusted for height without shoes (see appendix D).

RATIONALE: Weight gain during pregnancy is a major determinent of infant birth weight at all gestational ages.[1,2] Low gestational weight gain is associated with the lowest mean birth weight and the highest risk of low infant birth weight (< 2,500 grams) while the inverse is true of higher weight gain during pregnancy.[3] The association of lowest perinatal mortality rates with infant birth weights between 3,500 to 3,999 grams has resulted in more liberal weight gain recommendations.[1,4] In addition to total weight gain, the rate and pattern of gain are also of significance.

MANAGEMENT:

1.0 **GOAL:** To promote optimal fetal growth and development, maintain maternal nutrition stores and prevent maternal obesity.

2.0 **GUIDELINES:**

- 2.1 Client gains a total of approximately 25-35 lbs. with singleton pregnancy.[5]
- 2.2 Client gains approximately 3.5 lbs. during the first trimester and approximately 1 lb. per week throughout the remainder of pregnancy with singleton pregnancy.
- 2.3 Client gains approximately 35-45 lbs. with twin pregnancy.[5]
- 2.4 Client gains approximately 4.5 lbs. during the first trimester and approximately 1.3 lbs. per week with twin pregnancy.
- 2.5 Client avoids weight loss or weight stabilization.
- 2.6 Client continues weight gain throughout pregnancy at recommended rate despite excess weight gain or achievement of total recommended weight gain prior to delivery.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Stress importance of adequate weight gain for optimal fetal growth and pregnancy outcome.
- 3.2 Advise re: recommended total gain and pattern of gain.
- 3.3 Discuss components of weight gain (see appendix L) and reassure that recommended weight gain is essential, normal, and temporary.
- 3.4 Advise to continue weight gain at recommended rate despite previous excess gain or reaching suggested total gain prior to delivery.
- 3.5 Caution against voluntary weight loss or weight gain below recommended level.
- 3.6 Caution against weight gain in excess of recommended level.
- 3.7 Encourage short women to reach the lower and Black women the higher end of the suggested weight gain range.[5]

3.8 Show and discuss weight pattern on prenatal weight gain grid at each visit (see appendix C).

3.9 Provide dietary counseling, as indicated, considering ethnic background and economic limitations to achieve recommended weight pattern.

4.0 **MONITORING:**

4.1 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

WEIGHT MANAGEMENT: ADULT UNDERWEIGHT AT CONCEPTION

DEFINITION: Prepregnant weight 90% or less of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables, adjusted for height without shoes (see appendix D).

RATIONALE: Underweight status at conception, particularly when combined with low gestational weight gain, increases the risk for prematurity and low infant birth weight (< 2,500 g) and associated neonatal mortality, morbidity and neurologic dysfunction.[2,3,6] Higher gestational weight gain lessens the impact of low prepregnant weight, improving infant birth weight and pregnancy outcome.[3]

MANAGEMENT:

1.0 **GOAL:** To promote optimal fetal growth and development and replete maternal nutrition stores.

2.0 **GUIDELINES:**

- 2.1 Client gains approximately 28-40 lbs;[5] or if severely underweight the amount of weight needed to reach prepregnant standard weight for height and body frame size, 1959 Metropolitan Weight Tables (see appendix D), in addition to 25-35 lbs. with singleton pregnancy.
- 2.2 Client gains approximately 38-50 lbs;[5] or if severely underweight, the amount of weight needed to reach prepregnant standard weight for height and body frame size, 1959 Metropolitan Weight Tables (see appendix D), in addition to 35-45 lbs. with twin pregnancy.
- 2.3 Client gains approximately 5 lbs. during the first trimester and 1.3 lbs. per week or more throughout the remainder of the pregnancy.
- 2.4 Client avoids weight loss or weight stabilization.
- 2.5 Client continues weight gain throughout pregnancy at recommended rate, despite excess weight gain or achievement of total recommended weight gain prior to delivery.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Discuss risk of low prepregnancy weight and stress importance of avoiding additional risks for low birth weight (e.g. tobacco, alcohol, drugs).
- 3.2 Stress importance of higher weight gain for optimal fetal growth and pregnancy outcome.
- 3.3 Discuss components of weight gain (see appendix L).
- 3.4 Advise re: recommended total weight gain and pattern of gain.
- 3.5 Stress importance of continued weight gain throughout pregnancy.
- 3.6 Encourage short women to reach the lower and Black women the higher end of the suggested weight gain range.[5]

3.7 Show and discuss weight pattern on prenatal weight gain grid at each visit (see appendix C).

3.8 Provide dietary counseling, as indicated, considering ethnic background and economic limitations, to achieve recommended weight gain pattern.

4.0 **MONITORING:**

4.1 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

WEIGHT MANAGEMENT: ADULT OVERWEIGHT AT CONCEPTION

DEFINITION: Prepregnant weight 120-135% (overweight)/136% or more (obese) of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables, adjusted for height without shoes (see appendix D).

RATIONALE: Although high prepregnant weight appears to have a protective effect against lower infant birth weight, gestational weight gain in the obese and very obese still significantly influences infant birth weight.[1] Energy restriction in obese pregnant women has been associated with a 400 g decrease in infant birth weight and a higher incidence of low infant birth weights.[7] Weight gain < 10 lbs. in obese women has been associated with a doubled incidence of perinatal mortality when compared to gains of 15-20 lbs.[8] A weight gain of 13-19 lbs. has been associated with maximal infant birth weight in obese pregnant women.[9]

MANAGEMENT:

1.0 **GOAL:** To promote optimal fetal growth and development and maintain maternal nutrition stores.

2.0 **GUIDELINES:**

- 2.1 Overweight client gains a total of approximately 15-25 lbs. with singleton pregnancy.[5]
- 2.2 Overweight client gains approximately 2 lbs. during the first trimester and approximately .66 lbs. per week thereafter with singleton pregnancy.
- 2.3 Overweight client gains a total of approximately 25-35 lbs. with twin pregnancy.
- 2.4 Overweight client gains approximately 4 lbs. during the first trimester and approximately 1 lb. per week thereafter with twin pregnancy.
- 2.5 Obese client gains a total of approximately 15 lbs. with singleton pregnancy.[5]
- 2.6 Obese client gains approximately 1.5 lbs. during the first trimester and approximately .5 lbs. per week thereafter with singleton pregnancy.
- 2.7 Obese client gains a total of approximately 25 lbs. with twin pregnancy.
- 2.8 Obese client gains approximately 3 lbs. during the first trimester and approximately .8 lb. per week thereafter with twin pregnancy.
- 2.9 Client continues weight gain throughout pregnancy at recommended rate, despite excess weight gain or achievement of total recommended weight gain prior to delivery.
- 2.10 Client avoids weight loss or weight stabilization.

2.11 Client avoids weight gain in excess of recommended amount.

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Stress importance of adequate weight gain for optimal fetal growth and pregnancy outcome.

3.2 Discuss components of weight gain (see appendix L) and reassure that weight gain is essential, normal and temporary.

3.3 Advise re: recommended total gain and pattern of gain.

3.4 Caution against voluntary weight loss, weight maintenance or total gain below recommended level.

3.5 Caution against weight gain in excess of recommended level.

3.6 Advise to continue weight gain at recommended rate despite previous excess gain or reaching suggested total gain prior to delivery.

3.7 Encourage short women to reach the lower and Black women the higher end of the suggested weight gain range.[5]

3.8 Show and discuss weight gain pattern on prenatal weight gain grid at each visit (see appendix C).

3.9 Provide dietary counseling, as indicated, considering ethnic background and economic limitations, to achieve recommended weight pattern.

3.10 Reassure of assistance with weight loss after delivery.

4.0 **MONITORING:**

4.1 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

WEIGHT MANAGEMENT: ADOLESCENT

DEFINITION: Client under 18 years of age.
RATIONALE: Gestational weight gain appears to have a more significant impact on infant birth weight and higher weight gains may be needed to achieve adequate infant birth weight in adolescents than in older pregnant women.[10-12] Adolescents with low prepregnancy weight or young adolescents who may still be experiencing appreciable growth (within 3 years of menarche), are at highest risk for low infant birth weight (< 2,500 g). Inadequate weight gain either during the first or second half of pregnancy, and particularly if both occur, have been associated with higher rates of low infant birth weight in adolescents.[13,14]
MANAGEMENT:

1.0 **GOAL:** To promote optimal fetal growth and development, support adolescent growth and maintain maternal nutrition stores.

2.0 **GUIDELINES:**

- 2.1 Normal weight client (91-119% of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables) (see appendix D) gains approxiamtely 35 lbs. (singleton pregnancy)/45 lbs. (twin pregnancy).[5]
- 2.2 Normal weight client gains approximately 5 lbs. during the first trimester and 1.1 lbs. per week throughout the remainder of pregnancy with singleton pregnancy.
- 2.3 Normal weight client gains approximately 6 lbs. during the first trimester and 1.4 lbs. per week with twin pregnancy.
- 2.4 Underweight client (90% or less of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables) (see appendix D) gains approximately 40 lbs. (singleton pregnancy)/45 lbs. (twin pregnancy),[5] or if severely underweight; the amount of weight needed to reach prepregnant standard weight for height and body frame size, 1959 Metropolitan Weight Tables (see appendix D), in addition to 35 lbs. (singleton)/40 lbs. (twin) pregnancy.
- 2.5 Underweight client gains approximately 6 lbs. during the first trimester and 1.3 lbs. per week or more throughout the remainder of pregnancy.
- 2.6 Overweight client (120-135% of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables) (see appendix D) gains approximately 25 lbs. (singleton pregnancy)/35 lbs. (twin pregnancy).

2.7 Overweight client gains approximately 3 lbs. during the first trimester and .8 lbs. per week thereafter with singleton pregnancy.

2.8 Overweight client gains approximately 5 lbs. during the first trimester and 1.1 lbs. per week thereafter with twin pregnancy.

2.9 Obese client (136% or more of midpoint standard weight for height and body frame size, 1959 Metropolitan Weight Tables) (see appendix D) gains approximately 15-20 lbs. (singleton pregnancy)/25-30 lbs. (twin pregnancy).

2.10 Obese client gains approximately 1.5-2.0 lbs. during the first trimester and .5-.6 lbs. per week thereafter with singleton pregnancy.

2.11 Obese client gains approximately 3-4 lbs. during the first trimester and .8-.9 lbs. per week thereafter with twin pregnancy.

2.12 Client avoids weight loss or weight stabilization.

2.13 Client continues weight gain throughout pregnancy at recommended rate, despite excess weight gain or achievement of total recommended weight gain prior to delivery.

2.14 Client avoids weight gain in excess of recommended amount.

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Discuss risk of young age and stress importance of avoiding additional risks for low birth weight (tobacco, alcohol, drugs).

3.2 Stress importance of adequate weight gain for optimal fetal growth and pregnancy outcome.

3.3 Discuss components of weight gain (see appendix L) and reassure that weight gain is necessary, normal and temporary.

3.4 Advise re: recommended total weight gain and pattern of gain.

3.5 Stress importance of continued weight gain throughout pregnancy.

3.6 Show and discuss weight pattern on prenatal weight gain grid at each visit (see appendix C).

3.7 Involve significant other/family member in weight counseling.

3.8 Provide dietary counseling, as indicated, considering ethnic background and economic limitations, to achieve recommended weight gain pattern.

4.0 **MONITORING:**

4.1 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

WEIGHT MANAGEMENT: INADEQUATE WEIGHT GAIN

DEFINITION: Weight loss, weight stabilization or weight increase below recommended minimum total/rate of gain.

RATIONALE: Weight loss, failure to gain weight or inadequate weight gain may increase the risk for delivery of low birth weight (< 2,500 g) or intrauterinely growth retarded infants.[2,3] Energy restriction associated with weight gain inadequacies may further complicate pregnancy outcome by causing insufficient maternal intake of essential nutrients, utilization of dietary protein for energy rather than tissue synthesis, metabolism of maternal lean tissue and oxidation of fat. Ketosis, related to fat oxidation, may increase perinatal mortality and impair fetal neurological development.[15]

MANAGEMENT:

1.0 **GOAL:** To achieve recommended total weight gain and/or pattern of weight gain and avoid ketonuria (≥ 1+).

2.0 **GUIDELINES:**

2.1 Determine possible causes for weight gain inadequacies:
- Physical discomfort with eating: nausea/vomiting, heartburn, constipation, dental problems, epigastric pain, early satiety.
- Illness.
- Emotional stress, depression.
- Loss of appetite.
- Inadequate rest/sleep.
- Intentional weight loss, "dieting."
- Reluctance to gain weight.
- Eating disorder.
- Significant energy loss or expenditure (e.g. diarrhea, high level of physical activity).
- Insufficient food resources or inadequate storage/cooking facilities.
- Chemical use.
- Pica.
- High intake of low nutrient density, high energy foods (e.g. carbonated beverages, fried foods, sweets).
- Fluid loss.

2.2 Refer to nutritionist/registered dietitian if weight gain pattern does not improve within four weeks.

2.3 Refer for psychosocial counseling, as indicated.

2.4 Refer to food assistance programs for which client and family members are eligible (e.g. WIC, food stamps, food shelves, free/reduced cost school lunch).

2.5 Refer to smoking cessation, chemical dependency treatment program or support groups as indicated.
2.6 Provide client with personal copy of prenatal weight gain grid.
2.7 Client increases intake of energy and nutrient dense foods.

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Discuss concerns of inadequate weight gain and caution client to avoid additional risks for low birth weight (e.g. smoking, alcohol, drug use).
3.2 Stress importance of improved weight gain pattern.
3.3 Provide dietary counseling to relieve discomforts associated with eating, as indicated.
3.4 Provide dietary counseling, considering ethnic background and economic limitations, to achieve recommended eating pattern for pregnancy.
3.5 Provide dietary counseling to increase energy/nutrient density (e.g. whole or flavored milk, milk shakes, ice cream, cheese, pudding, fruited yogurt, pizza, casseroles, peanut butter, nuts, dried fruits, starchy vegetables, pasta, bread, granola, oatmeal/peanut butter cookies) (see appendix F-9).
3.6 Recommend frequent, light meals and snacks.
3.7 Advise to decrease physical activity.
3.8 Involve significant other/family member in dietary counseling.
3.9 Instruct to keep 3 day record of food/beverages consumed (see appendix E-3).
3.10 Instruct client in use of personal prenatal weight gain grid.

4.0 **MONITORING:**

4.1 See client q. 1-3 weeks.
4.2 Determine urinary ketone level at each visit.
4.3 Determine presence of edema.
4.4 Determine weight and plot on prenatal weight gain grid at each visit.
4.5 Review food record and compliance with dietary recommendations.
4.6 Evaluate outcome of referrals made.

WEIGHT MANAGEMENT: EXCESSIVE WEIGHT GAIN

DEFINITION: Weight increase above maximum recommended amount/rate of gain.

RATIONALE: Excessive weight gain during pregnancy may be associated with cephalopelvic disproportion, prolonged labor, increased Cesarean section rate, carbohydrate intolerance, maternal obesity or excessive fetal fat cell hyperplasia.[16]

MANAGEMENT:

1.0 **GOAL:** To achieve recommended total weight gain and/or pattern of weight gain.

2.0 **GUIDELINES:**

2.1 Determine possible causes for excessive weight gain:
- •High energy intake
- •High fat/sugar intake
- •Infrequent large meals
- •Low physical activity level
- •Emotional stress, depression, boredom, isolation
- •Increased appetite
- •Rapid weight loss prior to conception or in early pregnancy
- •Fluid retention
- •Multiple gestation
- •Smoking cessation
- •Pica (e.g. laundry starch, corn starch)

2.2 Refer to nutritionist/registered dietitian if weight pattern is not improved within 4 weeks.

2.3 Refer for psychosocial counseling, if indicated.

2.4 Provide client with personal copy of prenatal weight gain grid.

2.5 Client decreases energy intake while maintaining nutrient adequacy.

2.6 Client avoids weight loss or weight stabilization.

2.7 Client moderately increases physical activity level.

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Discuss concerns of excessive weight gain.

3.2 Stress importance of improved weight gain pattern.

3.3 Reassure that excess rate of gain after recent weight loss is related to replacement of fluid, lean tissue.

3.4 Reassure re: weight gain associated with fluid retention.

3.5 Reassure that weight gain associated with smoking cessation is healthier than continued smoking.

3.6 Provide dietary counseling, considering ethnic background and economic limitations, to achieve recommended eating pattern.

3.7 Provide dietary counseling to decrease energy intake and moderately increase dietary fiber (e.g. 1% or skim milk; fish, chicken, turkey without skin; lean meat, moderate use of whole grain products, low-calorie salad dressing; decreased intake of sweetened beverages, presweetened cereals, fried foods, desserts, etc.) (see appendix F-10).

3.8 Advise 4-5 light meals/snacks per day and caution against excess hunger/large meals.

3.9 Instruct to keep 3-day record of food/beverages consumed (see appendix E-3).

3.10 Instruct in use of personal prenatal weight gain grid.

4.0 **MONITORING**

4.1 See client q. 2-3 weeks.

4.2 Determine weight and plot on prenatal weight gain grid at each visit.

4.3 Determine presence of edema.

4.4 Review food record and compliance with dietary recommendations.

4.5 Evaluate outcome of referrals made.

HYPEREMESIS GRAVIDARUM

DEFINITION: Severe, persistent nausea and vomiting occurring most frequently in the first trimester and in association with significant weight loss, dehydration, ketosis (> 2+) and/or electrolyte disturbances.

RATIONALE: Hyperemesis gravidarum may result in dehydration, acidosis, hyperkalemia and semi-starvation. If not reversed, urologic, retinal, hepatic, or renal damage may occur.[1-3] Hyperemesis accompanied by electrolyte disturbances and significant weight loss (e.g. > 5% of prepregnant weight) may be associated with higher rates of intrauterine growth retardation, congenital anomalies (central nervous system, skeletal, integumentary) and testicular cancer in male offspring.[4,5] Early, aggressive therapy is essential to prevent significant weight loss and associated complications.[4] Intravenous infusion of dextrose not accompanied by parenteral B vitamins (essential for carbohydrate metabolism) has been associated with Wernicke-Korsakoff Syndrome, a potentially permanent or fatal neurological disorder.[6]

MANAGEMENT:

1.0 **GOAL:** To correct electrolyte imbalances, dehydration, and nutrient deficiencies.

2.0 **GUIDELINES:**

- 2.1 Withhold oral intake of food/fluids.
- 2.2 Provide intravenous fluid therapy containing dextrose (e.g. D5W and 1/3 normal saline).
- 2.3 Include parenteral multivitamins in intravenous infusion: e.g. MVI-12 (Rorer).
- 2.4 Provide peripheral amino acids/minerals/trace elements if intravenous therapy is needed for > 3 days.
- 2.5 Gradually advance oral intake as tolerated (e.g. ice chips, room temperature, clear liquids).
- 2.6 Manage and monitor according to nausea and vomiting guidelines when able to tolerate oral feeding.

DISCOMFORT: NAUSEA/VOMITING

DEFINITION: Mild to moderately severe nausea and/or vomiting.
RATIONALE: Nausea/vomiting, which may affect up to 90% of pregnancies, is attributed to reduced gastric motility and increased levels of estradiol. Symptoms usually begin between the 6th to 8th week of gestation and persist until the 15th to 20th week, although some women may experience discomfort throughout pregnancy. Symptoms are usually experienced throughout the day.[1-4] Dietary changes may help to relieve symptoms. Vitamin B_6 appears to have only weak anti-nausea properties in those with deficiency of the vitamin, while excesses or nutrient inbalances may result with supplementation.[3]
MANAGEMENT:

1.0 **GOAL:** To relieve discomfort, maintain adequate hydration and promote optimal nutrient intake and weight gain.

2.0 **GUIDELINES:**

- 2.1 Client consumes dry, carbohydrate rich-foods before slowly arising in the morning.
- 2.2 Client delays brushing teeth until later in the morning.
- 2.3 Client consumes frequent, light meals.
- 2.4 Client separates liquid and solid foods by approximately one hour.
- 2.5 Client avoids mucosal irritants or acid-stimulating foods/-substances (caffeine, tobacco, alcohol. pepper, highly spiced foods).
- 2.6 Client avoids foods of high fat content, which may delay gastric emptying.
- 2.7 Client avoids noxious odors.
- 2.8 Client consumes electrolyte-containing fluids.
- 2.9 Client decreases emotional stress.
- 2.10 Temporarily delay iron supplementation.
- 2.11 Avoid vitamin B_6 supplementation.
- 2.12 Refer to nutritionist/registered dietitian if weight loss/symptoms persist.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Instruct to keep in container at bedside: low-fat crackers (eg. saltines, oyster crackers), graham crackers, vanilla wafers, zwieback, dry toast, or unbuttered popcorn; consume and rest 10 minutes before slowly getting out of bed.
- 3.2 Advise to eat small amounts of food every 2-3 hours.
- 3.3 Instruct to slowly sip beverages and consume beverages/liquid foods (eg. gelatin, sherbet, soups) one hour before or after eating solid foods.

3.4 Instruct to avoid pepper, chili powder, hot sauce, tobasco sauce, barbecue sauce, etc. and highly spiced foods.
3.5 Advise to avoid fried/greasy foods (eg. fried meats/fish/-poultry, french fries, fried chips/snack foods, bacon, sausage, luncheon meats, butter/margarine, mayonnaise, salad dressings, pastries).
3.6 Encourage to drink broth/room temperature V-8/tomato juice, sport drinks, sweetened carbonated beverages (non-caffeine containing).
3.7 Recommend using an exhaust fan/opened windows to minimize cooking odors.
3.8 Suggest alternative protein sources if meats are not tolerated (baked chicken, casseroles, cottage cheese, etc.).
3.9 Caution to avoid alcoholic beverages, cigarettes, coffee, tea, colas and other caffeine-containing beverages, chocolate (see appendix F-13).
3.10 Emphasize that marajuana is not an appropriate nausea aid.
3.11 Caution against self-prescribed vitamin B_6 supplements.
3.12 Advise to temporarily delay or take less frequently vitamin/-mineral supplements until nausea is improved.
3.13 Teach relaxation techniques.
3.14 Provide supportive counseling (eg. women with nausea during pregnancy have fewer miscarriages, stillbirths; symptoms usually resolve by the 4th to 5th month).[2-5]

4.0 **MONITORING:**
4.1 Evaluate symptoms at each visit.
4.2 Evaluate compliance with recommendations at each visit.
4.3 Briefly determine and evaluate eating pattern at each visit.
4.4 Determine weight and plot on prenatal weight gain grid at each visit.
4.5 Evaluate urinary ketones at each visit.
4.6 Evaluate for signs of dehydration at each visit (decreased skin turgor, concentrated urine, decreased urine output).

DISCOMFORT: CONSTIPATION

DEFINITION: Hard, infrequent or difficult to pass stools, which may be accompanied by abdominal pain or hemorrhoids.

RATIONALE: Constipation, related to decreased gastrointestinal motility and tone and increased uterine pressure on the lower intestines, is a frequent complaint during pregnancy. Iron supplementation may further contribute to this discomfort. Severe constipation may interfere with food and nutrient intake and compliance with iron supplementation. Dietary fiber, which increases intestinal transit time, stool weight, and water content, and foods containing the laxative Diphenylisatin may be helpful in the management of constipation. However, high-fiber intakes may interfere with iron and other nutrient absorption.

MANAGEMENT:

1.0 **GOAL:** To relieve discomfort and promote optimal maternal nutrient intake, iron status and weight gain.

2.0 **GUIDELINES:**

- 2.1 Client moderately increases dietary fiber intake (see appendix F-8).
- 2.2 Client consumes foods containing Diphenylisatin (prunes/juice, figs) and bran.
- 2.3 Client consumes fluids liberally (10-12 cups per day).
- 2.4 Client consumes regular meals, particularly breakfast.
- 2.5 Client moderately increases physical exercise.
- 2.6 Client consumes hot or cold beverages, particularly in the morning, to stimulate gastric motility.
- 2.7 Client establishes a regular daily pattern of bowel habits.
- 2.8 Client avoids chemical laxatives, which may stimulate uterine contractions.
- 2.9 Client avoids mineral oil, which decreases the absorption of fat-soluble vitamins A, D, E, K.
- 2.10 If necessary, advise stool softner (eg. Docusate) or bulk forming laxatives only (methyl cellulose, psyllium, polycarbophil).[1]
- 2.11 Temporarily delay iron supplementation.
- 2.12 Refer to nutritionist/registered dietitian if constipation persists or interferes with nutrient intake/weight gain.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Advise to increase consumption of fiber rich foods and those with laxative properties (prunes/juice, figs, bran) (see appendix F-8).

3.2 Advise to drink 10-12 cups of liquids per day, including an iced or hot beverage in the morning.
3.3 Advise to attempt elimination at the same time each day.
3.4 Encourage to eat meals regularly and always eat breakfast.
3.5 Inform that dairy products are not constipating.
3.6 Suggest regular, daily exercise, such as walking.
3.7 Caution to avoid self-prescribed laxatives or mineral oil.
3.8 Advise to temporarily delay or take less frequently vitamin/-iron supplements until constipation is improved.

4.0 **MONITORING:**

4.1 Evaluate symptoms at each visit.
4.2 Evaluate complaince with recommendations at each visit.
4.3 Determine weight and plot on prenatal weight gain grid at each visit.
4.4 Briefly determine and evaluate eating pattern at each visit.

DISCOMFORT: HEARTBURN

DEFINITION: Burning sensation in the back of the throat or substernal region.

RATIONALE: Heartburn is frequently experienced, particularly after meals, during the second and third trimesters of pregnancy as increased uterine pressure, decreased gastric motility, and relaxation of the esophageal sphincter cause reflux of acidic stomach contents into the lower esophagus. Discomfort associated with eating may result in reduced food and nutrient intake. Dietary and positional changes may help to relieve discomfort. Antacids, which neutralize gastric acidity and increase lower esophageal sphincter tone, should be used judiciously. In large amounts, aluminum-containing antacids combine with phosphate and may result in hypophosphatemia while sodium bicarbonate and calcium carbonate may cause electrolyte disturbances and alkylosis. Calcium carbonate may interfere with absorption of iron and other nutrients.[1]

MANAGEMENT:

1.0 **GOAL:** To relieve discomfort and promote optimal maternal nutrient intake and weight gain.

2.0 **GUIDELINES:**

- 2.1 Client consumes frequent, light meals to avoid gastric distention and increased gastric acid secretion.[2]
- 2.2 Client avoids foods/substances which stimulate gastric acid or lower the esophageal sphincter pressure (caffeine, tobacco, alcohol, chocolate, peppermint, spearmint, highly spiced foods, foods/beverages of extreme temperature).
- 2.3 Client avoids foods of high fat content, which may delay gastric emptying.
- 2.4 Client avoids supine/bending position or physical exercise for two hours after eating.
- 2.5 Client avoids food for two hours before bedtime to prevent nocturnal gastric acid secretion.
- 2.6 Client elevates head and chest when in supine position.
- 2.7 Client uses antacids in low dosages and for limited duration when necessary.
- 2.8 Client avoids baking soda.
- 2.9 Refer to nutritionist/registered dietitian if symptoms interfere with weight gain and/or nutrient adequacy.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Advise to consume 5-6 small meals per day.
- 3.2 Caution to avoid alcoholic beverages, cigarettes, coffee, tea, colas and other caffeine-containing beverages (see appendix F-13).

3.3 Advise to avoid chocolate, spearmint or peppermint flavored foods or extremely hot/cold foods or beverages, pepper, hot sauce, tobasco, barbecue sauce, etc.

3.4 Advise to avoid fried/greasy foods (eg. fried meat/fish/poultry, french fries, fried chips/snack foods, pastries, mayonaise, salad dressing, butter/margarine).

3.5 Suggest eliminating foods which cause individual discomfort (eg. excessively sweet or salty/highly spiced foods, onion, garlic, peanut butter, etc.).

3.6 Instruct to avoid lying down, bending over or physical exercise for two hours after eating.

3.7 Instruct to avoid eating within two hours of bedtime.

3.8 Instruct to use extra pillow and/or raise head of bed 8-10 inches when lying down.

3.9 Caution to avoid baking soda, or self-medication with other antacids.

3.10 Advise to take prescribed antacids one hour after meals or at bedtime for maximum effectiveness.[1]

3.11 Caution not to exceed prescribed dosage of antacids.

3.12 Caution to avoid taking antacids within one hour of iron supplement.

4.0 **MONITORING:**

4.1 Evaluate symptoms at each visit.

4.2 Evaluate compliance with recommendations at each visit.

4.3 Determine weight and plot on prenatal weight gain grid at each visit.

4.4 Briefly determine and evaluate eating pattern at each visit.

DISCOMFORT: LEG CRAMPS

DEFINITION: Sudden, painful contractions of the gastrocnemius muscle.
RATIONALE: The etiology of leg cramps, which may affect up to 30% of pregnant women, particularly during the second half of pregnancy, is unknown.[1] Although theories related to calcium metabolism and calcium-phosphorus imbalance have been proposed, there is little evidence for their support. Neither increases nor decreases in total/ionized serum calcium levels have been observed with supplementation of 2 g calcium per day in women complaining of leg cramps.[1,2] Restriction of dairy products, phosphate binding with aluminum hydroxide or calcium supplementation do not appear to be warranted. Stretching exercises may help to relieve discomfort.

MANAGEMENT:

1.0 **GOAL:** To relieve discomfort, promote optimal maternal nutrient intake and prevent nutrient excesses or imbalances.

2.0 **GUIDELINES:**

- 2.1 Client consumes meals/snacks consistent with daily food guide for pregnancy (see appendix).
- 2.2 Client avoids calcium supplements unless dairy products cannot be consumed (1,200 mg/day).
- 2.3 Client avoids toe pointing, which may cause leg cramps.
- 2.4 Client gently stretches gastrocnemius muscle to relieve leg cramps.

3.0 **CLIENT EDUCATION/COUNSELING:**

- 3.1 Provide dietary counseling to achieve recommended eating pattern, considering ethnic background and economic limitations.
- 3.2 Caution against self-prescribed calcium supplements.
- 3.3 Caution against toe pointing.
- 3.4 Instruct in calf-stretching exercises:
  - * Stand 2-3 feet away from wall with arms outstretched and hands on wall. Slowly lean into wall, bending arms and touching elbows to wall.
  - * Gently stretch legs while sitting or lying down by flexing foot, pressing the heel downward and slowly pulling toes towards knee (avoid pointing toes).

4.0 **MONITORING:**

- 4.1 Evaluate symptoms at each visit.
- 4.2 Evaluate compliance with recommendations at each visit.
- 4.3 Briefly determine and evaluate eating pattern at each visit.

DISCOMFORT: EDEMA

DEFINITION: Swelling of the lower extremities and/or face and hands.
RATIONALE: Edema, which occurs in up to 90% of normal pregnancies, has been associated with higher birth weights.[1] It appears to be caused by: 1) lowered plasma oncotic pressure in conjunction with hemodilution and hypoalbuminemia; 2) reduced venous return from the lower extremities caused by obstruction of the pelvic veins by the enlarged uterus. Sodium needs are higher during pregnancy to accommodate tissue growth, blood volume expansion, and increased cardiac and renal circulation, while physiologic changes promote sodium loss.[2] Restriction of dietary sodium will not effectively manage edema and may predispose to hypertension in later pregnancy, deplete fluid and electrolytes, impair normal plasma volume expansion, decrease uteroplacental perfusion and stress the sodium conserving system.[2-4] Positional changes may help to relieve edema.
MANAGEMENT:

1.0 **GOALS:** To relieve discomfort and maintain sodium balance.
2.0 **GUIDELINES:**
- 2.1 Avoid restriction of dietary sodium.
- 2.2 Client consumes fluids liberally (10-12 cups per day).
- 2.3 Client rests/sleeps in left lateral recumbent position, to reduce uterine pressure on the inferior vena cava.
- 2.4 Client elevates feet.

3.0 **CLIENT EDUCATION/COUNSELING:**
- 3.1 Instruct to use iodized salt to taste.
- 3.2 Recommend 10-12 cups of liquids per day (water, juice, milk).
- 3.3 Advise to rest/sleep on left side.
- 3.4 Advise to elevate feet several times per day.
- 3.5 Advise to avoid crossing legs.

4.0 **MONITORING:**
- 4.1 Evaluate symptoms at each visit.
- 4.2 Evaluate compliance with recommendations at each visit.
- 4.3 Determine weight and plot on prenatal weight gain grid at each visit.

PICA

DEFINITION: Abnormal cravings resulting in regular, compulsive ingestion of inappropriate substances (e.g. ice, baking soda, lemons, laundry starch, paint chips, cigarette butts, mothballs, coffee grounds, etc.).

RATIONALE: Pica practices may be associated with toxicity (lead, nicotine, paradichlorobenzene, caffeine), constipation or gastric/intestinal obstruction, nutrient deficiencies, weight gain abnormalities or dental injury.[1,2,3] (see appendix M) Pica and iron deficiency anemia frequently occur simultaneously.[3]

MANAGEMENT:

1.0 GOAL: To prevent toxicities, gastrointestinal/dental injury and promote optimal maternal nutrient intake/utilization and weight gain.

2.0 GUIDELINES:

- 2.1 Client avoids all toxic substances.
- 2.2 Client avoids/limits all other pica substances.
- 2.3 Client consumes meals, snacks consistent with daily food guide for pregnancy.
- 2.4 Provide prenatal vitamin/mineral supplement.
- 2.5 Provide iron therapy (total dosage 200 mg elemental/day) if anemia (hemoglobin < 11.0 g/dl; hematocrit < 33%).
- 2.6 Refer for psychosocial counseling, if indicated.

3.0 CLIENT EDUCATION/COUNSELING:

- 3.1 Discuss potential risks of pica practices.
- 3.2 Provide dietary counseling, considering ethnic background and economic limitations to achieve recommended eating pattern.
- 3.3 Stress importance of compliance with vitamin/mineral supplementation.
- 3.4 Discuss food sources of iron (see appendix F-7).
- 3.5 Encourage substitutions for pica substances (eg. dry milk powder, sugarless gum, sour pickles, etc.).
- 3.6 Reinforce positive changes in pica practices.
- 3.7 Establish new behavioral change goals.

4.0 MONITORING:

- 4.1 Evaluate pica practices at each visit.
- 4.2 Briefly determine and evaluate eating pattern at each visit.
- 4.3 Evaluate compliance with vitamin/mineral supplementation at each visit.
- 4.4 Determine hemoglobin/hematocrit q 2-4 wks.
- 4.5 Determine weight and plot on prenatal weight gain grid.

EXERCISE

DEFINITION: Moderate aerobic activity, which involves repetitive, rhythmic motions, use of large muscle groups, increased heart rate and deep breathing.

RATIONALE: Potential exercise benefits during pregnancy include fewer physical discomforts, improved circulation, enhanced self-esteem and sense of well-being, and more rapid postpartum recovery.[1,2] Moderate aerobic exercise has no apparent adverse affects on the maternal-fetal system.[1,3] Physiologic and hormonal changes necessitate exercise modifications (eg. laxity and instability of ligaments and joints increase risk of musculoskeletal injury; changes in the center of gravity result in balance problems, hip and back strain).[4]

MANAGEMENT:

1.0 GOAL: To encourage maternal fitness, protect fetal well-being, and prevent maternal exhaustion, dehydration, hyperthermia, and musculoskeletal injury.

2.0 GUIDELINES:

2.1 Client does warmup/cool down exercises for 10-15 minutes before/after exercise.[4,5]

2.2 Client limits aerobic exercise sessions to 30-45 minutes, interspersed with 2-3 minute rest periods. [5]

2.3 Client gradually increases aerobic exercise from 15-30 minutes over a six week period if exercise program is initiated in pregnancy.

2.4 Client maintains exercise heart rate below 140 beats per minute, as measured by pulse rate.[5]

2.5 Client decreases exercise intensity as pregnancy progresses (reduces speed, number of repetitions).[3]

2.6 Client avoids competition and preset performance goals.

2.7 Client avoids exercises which may cause lower back strain, knee trauma, ligament/joint stress (e.g. full sit ups, toe touches, double leg lifts, squats, sprinting, bouncing, twisting, or jerky movements)[3,4]

2.8 Client avoids dead lifts, bent rows, squats while weight lifting.[4]

2.9 Client limits nautilus to upper body and leg strengthening activities (lighter weights, fewer repetitions).[4]

2.10 Client avoids breath holding and straining (Valsalva maneuver).

2.11 Client avoids activities which may cause maternal/fetal injury (eg. racquetball, downhill skiing, horseback riding, roller/ice skating, water skiing, diving, scuba diving, distance/marathon running).[4]

2.12 Client wears well-cushioned shoes; light/layered clothing.

2.13 Client avoids exhaustion, over-heating, dehydration.[3,5]

2.14 Client avoids exercise if febrile/in hot, humid weather, (eg. temperature plus humidity > 150).
2.15 Client avoids hot tubs, saunas.
2.16 Client consumes sufficient energy to support exercise and an adequate weight gain (see appendix N).
2.17 Client consumes fluids liberally (eg. 10-12 cups per day), including cold water before, during, and after exercise.
2.18 Client consumes carbohydrates before/after exercise (eg. bread, pasta, fruit, etc.), and avoids exercise in the fasting state.
2.19 Client discontinues exercise if she experiences dizziness, headache, pain, bleeding, contractions, muscle weakness. [3]
2.20 Client avoids exercise if she has pregnancy induced hypertension, severe anemia, uncontrolled diabetes, multiple gestation, cervical incompetence, threatened abortion, placenta previa.[4,5]

3.0 CLIENT EDUCATION/COUNSELING:

3.1 Discuss exercise recommendations.
3.2 Discuss exercise precautions.
3.3 Discuss exercise contra-indications.
3.4 Provide weight counseling to achieve recommended weight gain pattern.
3.5 Teach pulse rate monitoring (take at wrist for 10 seconds and multiply by 6).
3.6 Advise use of exercise record if extremely active or inactive (see appendix E-6).

4.0 MONITORING:

4.1 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).
4.2 Determine hemoglobin/hematocrit monthly.
4.3 Briefly determine exercise patterns at each visit.

VEGETARIANISM

DEFINITION: Exclusion of animal foods: All (Total or Vegan); all except dairy products (Lacto); all except dairy products and eggs (Lacto-ovo); red meat only (Partial).

RATIONALE: Vegetarian eating plans can be compatible with good health and may have health benefits.[1] Potential advantages of a higher fiber and complex carbohydrate and lower fat and energy intake during pregnancy include improved carbohydrate tolerance, decreased incidence of constipation and less likelihood of excessive weight gain. [2] However, careful planning and supplementation with some nutrients are necessary to promote adequate nutrient status and prevent anemia and inadequate weight gain.[2,3]

MANAGEMENT:

1.0 **GOAL:** To meet maternal-fetal nutrient needs and promote adequate weight gain while respecting an alternative approach to eating.

2.0 **GUIDELINES:**

2.1 Refer clients practicing total vegetarianism to nutritionist/registered dietitian.

2.2 Provide prenatal vitamin/mineral supplement (1 qd) (see appendix G-1).

2.3 Provide additional calcium supplementation if total vegetarian (total dosage 1,200 mg/day).[4]

2.4 Provide iron therapy (total dosage 200 mg elemental/day) if anemia (hemoglobin < 11.0 g/dl/hematocrit < 33%.

- Provide supplement of 15 mg zinc and 2 mg copper.[5]

2.5 Client consumes meals/snacks consistent with daily food guide for pregnancy (see appendix F-3).

2.6 Client consumes:

- Energy ≥ 36 calories Kcal/kg (16 Kcal/lb.)/day to assure efficient protein utilization.[6]
- Sufficient protein quality/quantity:
  - Dairy products/eggs (high-quality protein).
  - Mixtures of incomplete plant proteins (grains, legumes, nuts, seeds, vegetables) to yield high quality protein.
  - Meat analogs (textured vegetable proteins).
- Nutrient - dense foods to promote adequate weight gain.
- Vitamin-C source with meals to enhance dietary iron absorption (see appendix F-5).
- Iodized salt.

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Discuss advantages of including dairy products/eggs during pregnancy.

3.2 Stress importance of compliance with vitamin/mineral supplementation.
3.3 Provide dietary counseling to achieve recommended eating pattern.
3.4 Encourage a wide variety of foods.
3.5 Advise consumption of appropriate mixtures of plant proteins throughout the day[7] (see appendix F-6).
NOTE: It is no longer considered necessary to consume precise combinations of plant proteins at the same meal.
3.6 Advise frequent meals/snacks of nutrient-energy dense foods (see appendix F-9).
3.7 Provide counseling to achieve recommended weight gain pattern.
3.8 Encourage food sources of iron and vitamin C (see appendix F).
3.9 Encourage food sources of zinc (whole grain, yeast-leavened breads, fortified breakfast cereals, legumes, nuts, seeds, meat analogs, miso, tofu, wheat germ).
3.10 Encourage food sources of calcium (spinach, broccoli, collards, kale, mustard/turnip greens, almonds, sardines, canned salmon with bones).

4.0 **MONITORING:**
4.1 Determine hemoglobin/hematocrit monthly.
4.2 Determine weight and plot on prenatal weight gain grid at each visit.
4.3 Evaluate compliance with vitamin/mineral supplementation at each visit.
4.4 Briefly determine and evaluate eating pattern (protein, calcium, iron sources, etc.) at each visit.

SUBSTANCE USE/ABUSE

DEFINITION: Tobacco, alcohol, illicit drugs (eg. cocaine, marijuana, heroin, amphetamines, PCP's, etc.), caffeine, aspartame.

RATIONALE: Tobacco, alcohol, and illicit drug use, as well as high caffeine intakes may have direct adverse effects on pregnancy outcome.[1-6] Use/abuse of these substances may further complicate pregnancy by compromising maternal-fetal nutrition status. Adverse effects may include: appetite suppression, reduced nutrient intake, absorption, synthesis, and utilization; increased nutrient losses (vomiting, diarrhea, urinary excretion); decreased maternal weight gain, nutrient deficiencies, anemia and reduced financial resources for food (see appendix O).[1,5-10] Moderate use of aspartame appears to be safe in pregnancy.[11]

MANAGEMENT:

1.0 **GOAL:** To promote abstinence from tobacco, alcohol, illicit drugs, and limited caffeine intake; to improve the nutrition status of substance abusing clients.

2.0 **GUIDELINES:**

2.1 Client abstains from tobacco, alcohol, illicit drugs throughout pregnancy.
- Use a health care team approach.
- Refer client to inpatient/outpatient/community treatment programs, alcoholics anonymous, narcotics anonymous, smoking cessation programs as indicated.

2.2 Refer client to a nutritionist/registered dietitian.

2.3 Refer client and other family members to food assistance programs for which they are eligible (eg. WIC, food stamps, food shelves, free/reduced cost school lunch).

2.4 Client limits caffeine intake to ≤ 150 mg/day (see appendix F-13).

2.5 Client limits aspartame (Nutrasweet, Equal) to ≤4 servings per day.

2.6 Provide prenatal vitamin/mineral supplement containing folate, zinc, iron (1 qd).

2.7 Provide iron therapy (total dosage 200 mg elemental/day) if anemia (hemoglobin < 11.0 g/dl/hematocrit 33%).

2.8 Client consumes meals/snacks consistent with daily food guide for pregnancy (see appendix F-2).

2.9 Assure an adequate energy intake, and protein intake of approximately 100 g/day.[1]

2.10 Avoid nicotine - containing chewing gum as smoking cessation aid.

2.11 Client keeps substance-use diary (see appendix P).

3.0 **CLIENT EDUCATION/COUNSELING:**

3.1 Discuss concerns of substance use during pregnancy and importance of abstinence from tobacco, alcohol, illicit drugs; limitation of caffeine intake th oughout pregnancy.

3.2 Advise decrease in caffeine intake over 1 week to avoid caffeine-withdrawal headaches.

3.3 Advise to limit foods/beverages containing aspartame to 3-4 servings per day.

3.4 Teach stress management techniques.

3.5 Provide supportive counseling, involving client's partner, family members, friends.

3.6 Provide weight counseling to achieve recommended weight gain pattern.

3.7 Provide dietary counseling considering ethnic background and economic limitations to achieve recommended eating pattern.

3.8 Encourage frequent intake of nutrient-dense foods (see appendix F-9).

3.9 Discuss importance of compliance with vitamin/mineral supplementation/therapy.

3.10 Discuss food sources of iron (see appendix F-7).

3.11 Stress inappropriateness of marijuana use for appetite stimulation or nausea control.

3.12 Help to identify physical/psychological dependency on cigarettes and discuss appropriate cessation methods (see appendix Q).

3.13 Encourage to keep substance-use diary.

4.0 **MONITORING:**

4.1 See q 1-2 weeks.

4.2 Evaluate current substance use pattern at each visit, including review of substance use diary kept by client.

4.3 Determine weight and plot on prenatal weight gain grid at each visit (see appendix C).

4.4 Determine hemoglobin/hematocrit monthly.

POSTPARTUM

DEFINITION: Six week period following delivery.
RATIONALE: An adequate intake of essential nutrients is necessary for effective wound healing, repletion of nutrition stores and sufficient breast milk production. Breastfeeding support and appropriate management (see appendix R) are associated with improved lactation performance. Weight control counseling will help to assure safe and effective achievement of prepregnant weight status/healthy body weight.
MANAGEMENT:

1.0 GOAL: To replete maternal nutrition stores and promote successful breastfeeding and appropriate weight loss.

2.0 GUIDELINES: Breastfeeding client.

- 2.1 Client consumes 3 meals and 2-3 snacks/day consistent with basic food guide for breastfeeding (see appendix F).
- 2.2 Client consumes adequate energy intake (see appendix F-1).
- 2.3 Client drinks approximately 8 cups of fluid/day.
- 2.4 Client avoids alcohol, tobacco, illicit drugs, and consumes caffeine in moderation (eg. 1-2 servings/day).
- 2.5 Client avoids weight loss in excess of 1 lb. per week.
- 2.6 Client maintains hemoglobin ≥ 12.0 g/dl/hematocrit ≥ 36%.
- 2.7 Provide prenatal vitamin/mineral supplement to those who may be at risk for nutrient deficiency (total vegetarians, adolescents < 19 yrs of age, those with short interval, high parity, breastfeeding twins).
- 2.8 Client avoids excess vitamin/mineral supplementation and use of toxic herbs (eg. comfrey, lobelia).
- 2.9 Client avoids breastfeeding under any of the following conditions: chemotherapy, herpes breast lesion, HIV positive,[1] substance abuse, untreated tuberculosis or hepatitis B.
- 2.10 Refer total vegetarians to nutritionist/registered dietitian.
- 2.11 Refer significantly obese or underweight clients to nutritionist/registered dietitian.

3.0 GUIDELINES: Non-breastfeeding client.

- 3.1 Client consumes at least 3 meals/day consistent with basic food guide (see appendix F).
- 3.2 Client limits cholesterol, total fat, sodium, alcohol, increases complex carbohydrates and moderately increases dietary fiber intake (see appendix F).
- 3.3 Client avoids rapid weight loss (> 2 lbs/week).
- 3.4 Client in need of weight loss consumes approximately 10 calories/pound of current weight.[2]
- 3.5 Client avoids anorectic drugs (diet pills), purging, fad diets.

3.6 Client engages in regular, moderate aerobic exercise.
3.7 Client uses behavior modification techniques (see appendix S).
3.8 Evaluate glucose tolerance in clients who had gestational diabetes (see postpartum, follow gestational diabetes guidelines).

4.0 CLIENT EDUCATION/COUNSELING:

4.1 Discuss importance of adequate nutrition for successful breastfeeding and more rapid postpartum recovery.
4.2 Discuss recommended eating pattern for lactating/nonlactating clients considering ethnic background and economic limitations.
4.3 Caution to avoid smoking, alcohol, illicit drugs, and omit caffeine intake while breastfeeding.
4.4 Caution to avoid rapid weight loss (> 2 lbs/wk), rigid dieting (< 10 calories/lb current weight), fad diets, amphetamines, anorectic drugs, or purging.
4.5 Discuss sound weight loss techniques:

- Increase aerobic exercise to at least 3 times/week for at least 30 minutes/session. Include a warm up and cool down period and maintain pulse rate at 70-85% of maximal aerobic capacity (220 minus age).
- Consume frequent, light meals/snacks.
- Avoid excessive hunger, large meals, eating to "fullness".
- Decrease alcohol, fat and sugar (whole, 2% milk, ice cream, butter, margarine, fried foods, nuts, gravy, salad dressings, sauces, fried snacks, bacon, sausage, fatty cuts of meats, desserts, pastries, sweetened beverages, candy).
- Increase skim or 1% milk, low-fat cheeses, fish, chicken, turkey (baked, broiled without skin), fresh fruits/vegetables, whole grains, low-calorie salad dressings (see appendix F-10).
- Moderately increase dietary fiber (see appendix F-8).
- Practice behavior modification techniques (see appendix S).
- Keep food record (see appendix E-4).

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RESOURCES

American Cancer Society
1599 Clifton Road, N.E.
Atlanta, Georgia 30329
1-800-227-2345
(Smoking cessation)

American College of Obstetricians and Gynecologists
600 Maryland Avenue, S.W., Suite 300
Washington, D.C. 20024
(Exercise)

American Council on Drug Education
204 Monroe Street, Suite 110
Rockville, MD. 20850
(Substance use)

American Dietetic Association
430 North Michigan Avenue
Chicago, IL. 60011
312-280-5000
(Diabetes, nutrition)

American Lung Association
1740 Broadway
New York, NY. 10010
212-206-6770
(Smoking cessation)

Fetal Alcohol Education Program
Boston University Medical Center
7 Kent Street
Brookline, MA. 02146
(Alcohol use)

Healthy Mothers Healthy Babies Coalition
600 Maryland Avenue, S.W.
Suite 300 East
Washington, DC. 20024
(Nutrition, substance use)

March of Dimes
1275 Mamaroneck Avenue
White Plains, NY 10605
(Substance use, nutrition)

Melpomene Institute for Women's Health Research
2125 East Hennepin Avenue
Minneapolis, MN. 55413
612-378-0545
(Exercise)

National Clearinghouse for Alcohol Information
P.O. Box 2345
Rockville, MD. 20852
301-468-2600
(Alcohol use)

National Clearinghouse for Drug Abuse Information
P.O. Box 416
Kensington, MD. 20795
301-443-6500
(Alcohol use)

National Dairy Council
Rosemount, IL. 60018
708-696-1020
(Nutrition)

Office on Smoking and Health
Technical Information Center
Park Bldg., Room 1-16
5600 Fishers Lane
Park Building, MD. 20857
301-443-1690
(Smoking cessation)

Perinatal Center for Chemical Dependence
215 East Chicago Avenue
Chicago, IL. 60611
312-908-0867
(Substance use)

DATE:_____

LIFESTYLE HEALTH ASSESSMENT

Exercise

1. How often did/do you exercise before you were pregnant/now that you are pregnant (walking, biking, running, school sports, aerobics, etc.)?

	Before	Now
3 or more times/week	_____	_____
less than 3 times/week	_____	_____

2. How long did/do you exercise?

less than 20 minutes	_____	_____
20-30 minutes	_____	_____
35-60 minutes	_____	_____

3. What kinds of exercise did/do you do most often?

	Before	Now
competitive sports	_____	_____
recreational sports	_____	_____
gym classes	_____	_____
aerobics/exercise classes	_____	_____
dancing	_____	_____
weight lifting/body building	_____	_____
other_____	_____	_____
_____	_____	_____

4. How often did you/do you breathe hard and feel "out of breath" when you exercise?

	Before	Now
usually	_____	_____
sometimes	_____	_____
hardly ever	_____	_____

Appendix A-1

DRUG USE ASSESSMENT

OTC / Prescription

	Before Pregnancy		Early Pregnancy (1st 8 weeks)		Now	
	Frequency	Amount	Frequency	Amount	Frequency	Amount
Aspirin						
Tylenol						
Birth Control Pills						
Diet Pills						
Pills for Acne						
Antibiotics						
Cold/cough medicines						
Allergy medicines						
Laxatives						
Nausea medicines						
Seizure medicines						
Vitamins						
Caffeine (coffee, tea, colas, Mountain Dew)						

DRUG USE ASSESSMENT

	Cigarettes	Alcohol (beer, wine coolers) "hard liquor"	Marijuana (pot, joint, grass, hash, reefer, weed)	Amphetamines (speed, uppers, white crosses, pink hearts)	Methamphetamines (crystal, ice, crank)	Cocaine (lady, snow, rock, base, crack)
How often did/do you use?						
Before pregnancy						
Early pregnancy						
Now						
How much did/do you usually use?						
Before pregnancy						
Early pregnancy						
Now						
Have you/do you ever use more?						
How much?						
How often do you get high, feel out of control or black out?						
How do you use? (Snort, free-base, shoot up, etc.)						
How old were you when you first started to use?						
Number of years used?						
Why do you use?						
Have you ever cut down or quit?						
Why?						
Have you ever had treatment?						
What are your plans for using during Pregnancy?						
What drugs do you use together?						
How often?						
Supports/problems you expect?						

DRUG USE ASSESSMENT (cont.)

	Depressants (downers, reds, barbiturates, tranquilizers, sleeping pills)	Inhalants (glue, white-out, gasoline, aerosol sprays)	Hallucinogens (LSD, mushrooms, acid, PCP's, angel dust)	Heroin (junk, dope, china white)	Opium	Methadone	Other
How often did/do you use?							
Before pregnancy							
Early pregnancy							
Now							
How much did/do you usually use?							
Before pregnancy							
Early pregnancy							
Now							
Have you/do you ever use more?							
How much?							
How often do you get high, feel out of control or black out?							
How do you use? (Snort, free-base, shoot up, etc.)							
How old were you when you first started to use?							
Number of years used?							
Why do you use?							
Have you ever cut down or quit?							
Why?							
Have you ever had treatment?							
What are your plans for using during pregnancy?							
What helps, problems do you expect?							
What other drugs do you use together?							
How often?							
					Appendix A-3 cont.		

DETERMINATION OF BODY FRAME SIZE BY HEIGHT AND WRIST CIRCUMFERENCE (ADULT FEMALE)

Height in inches (without shoes)	Wrist Circumference	Medium Frame
	inches	cm
< 63	5-5/8 to 6-1/4	14.3 to 15.8
63 to 65	5-7/8 to 6-1/2	14.8 to 16.3
66 to 67	6-1/8 to 6-5/8	15.3 to 16.8
68 to 69	6-1/4 to 6-7/8	15.8 to 17.3
70 to 71	6-3/8 to 7	16.3 to 17.8
> 71	6-5/8 to 7-1/4	16.8 to 18.3

Lower measurement = small frame

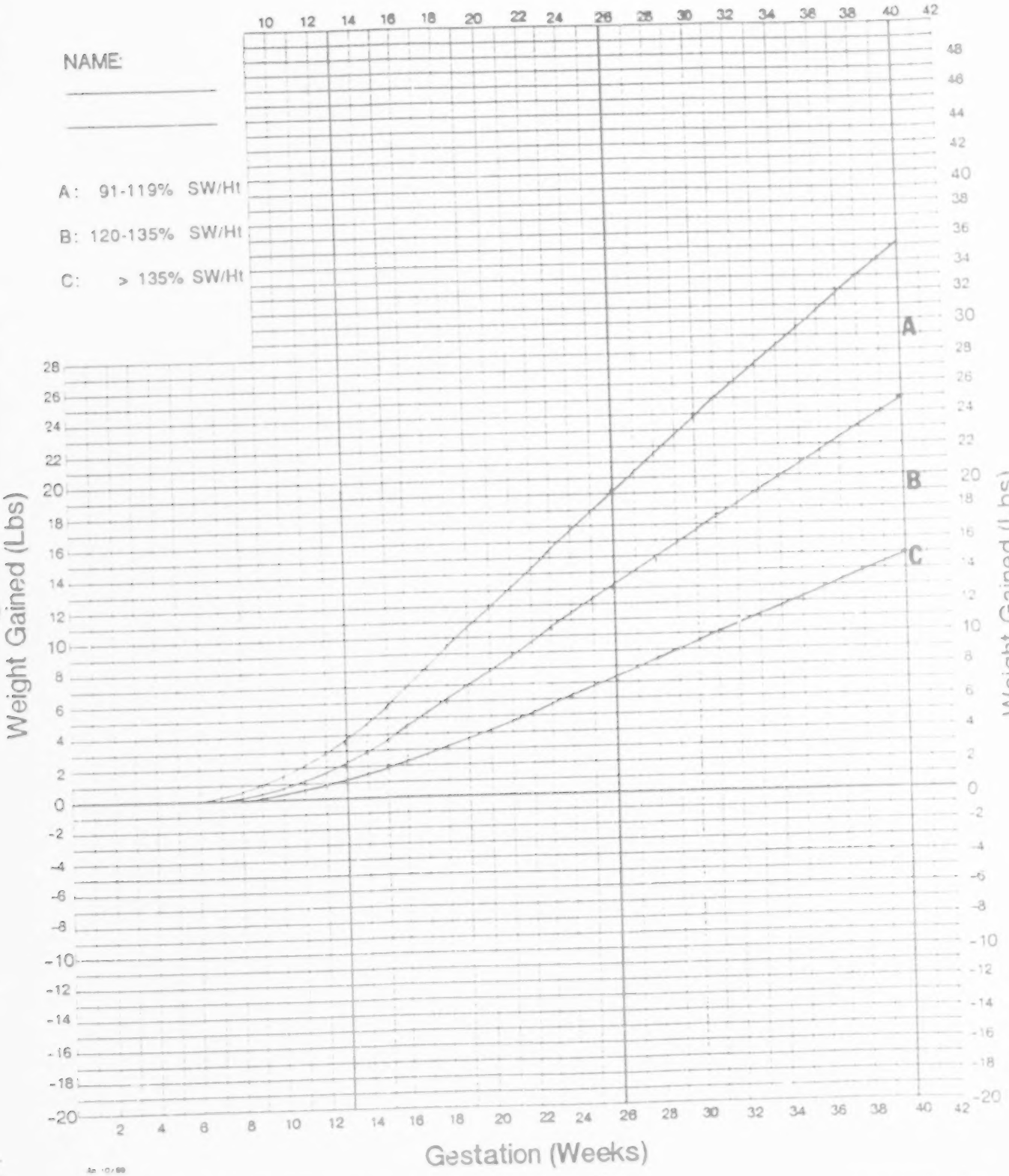
Higher measurement = large frame

With palm facing up, measure right wrist with insertion tape or non-flexible measuring tape distal to styloid process (toward fingers from wrist bone).

Modified from:
GRANT J: Handbook of Total Parenteral Nutrition, W.B. Saunders Co., Philadelphia, p. 15, 1980.

Appendix B

PRENATAL WEIGHT GAIN GRID



If underweight at conception, begin grid at number of lbs. prepregnant weight is below SW/Ht.

Appendix C-1

DIRECTIONS FOR PRENATAL WEIGHT GAIN GRID

1. Plot number of pounds above prepregnant weight at current weeks gestation, beginning at zero pounds.

2. If prepregnant weight is unknown, plot weight on grid corresponding with current week's gestation.

3. If underweight at conception (90% or less of midpoint standard weight for height), begin grid at number of pounds prepregnant weight is below standard weight for height.

4. Expected weight gain:

   91-119% midpoint Standard Weight/Height - 25-35 lbs.

   120-135% midpoint Standard Weight/Height - 15-25 lbs.

   > 136% midpoint Standard Weight/Height - 15 lbs.

   ≤ 90% midpoint Standard Weight/Height - 28-40 lbs.; or if severely underweight, 25-35 lbs. + pounds to reach standard weight/height.

Appendix C-2

HEIGHT-WEIGHT STATUS OF WOMEN - SMALL FRAME
(WEIGHT IN POUNDS, LIGHT INDOOR CLOTHING)

HEIGHT (INCHES WITHOUT SHOES)	STANDARD WEIGHT	UNDERWEIGHT ≤	OVERWEIGHT ≥	OBESE ≥
56	90-96	84	112	127
57	92-99	86	115	130
58	94-102	88	118	133
59	97-105	91	121	137
60	100-108	94	125	141
61	103-111	96	128	146
62	106-114	99	132	150
63	109-117	102	136	154
64	112-121	105	140	158
65	116-125	108	145	164
66	120-129	112	149	169
67	124-133	116	154	175
68	128-138	120	160	181
69	132-142	123	164	186
70	136-144	126	168	190
71	140-148	130	173	196
72	144-152	133	178	201

MODIFIED FROM: Metropolitan Life Insurance Co., Height-Weight Tables, 1959.

UNDERWEIGHT = 90% or less of midpoint, standard weight range.

OVERWEIGHT = 120%-135% of midpoint, standard weight range.

OBESE = 136% or more of midpoint, standard weight range.

HEIGHT-WEIGHT STATUS OF WOMEN - MEDIUM FRAME
(WEIGHT IN POUNDS, LIGHT INDOOR CLOTHING)

HEIGHT (INCHES WITHOUT SHOES)	STANDARD WEIGHT	UNDERWEIGHT ≤	OVERWEIGHT ≥	OBESE ≥
56	94-105	90	119	135
57	96-108	92	122	139
58	99-111	95	126	143
59	102-114	97	130	147
60	105-117	100	133	151
61	108-120	103	137	155
62	111-124	106	141	160
63	114-128	109	145	165
64	118-133	112	151	171
65	122-137	117	155	176
66	126-141	120	160	182
67	130-145	124	165	187
68	134-149	127	170	192
69	138-153	131	175	198
70	142-157	135	179	203
71	146-161	138	184	209
72	150-165	142	189	214

MODIFIED FROM: Metropolitan Life Insurance Co., Height-Weight Tables, 1959.

UNDERWEIGHT = 90% or less of midpoint, standard weight range.

OVERWEIGHT = 120%-135% of midpoint, standard weight range.

OBESE = 136% or more of midpoint, standard weight range.

HEIGHT-WEIGHT STATUS OF WOMEN - LARGE FRAME
(WEIGHT IN POUNDS, LIGHT INDOOR CLOTHING)

HEIGHT (INCHES WITHOUT SHOES)	STANDARD WEIGHT	UNDERWEIGHT ≤	OVERWEIGHT ≥	OBESE ≥
56	102-117	99	132	149
57	104-120	101	134	152
58	107-123	104	138	156
59	110-126	106	142	160
60	113-129	109	145	165
61	116-132	112	149	169
62	119-136	115	154	173
63	123-140	119	158	179
64	127-144	122	163	184
65	131-148	126	168	190
66	135-152	130	173	195
67	139-156	133	178	201
68	143-161	137	182	207
69	147-166	141	188	213
70	151-171	145	193	219
71	155-175	149	198	224
72	159-179	152	203	230

MODIFIED FROM: Metropolitan Life Insurance Co., Height-Weight Tables, 1959.

UNDERWEIGHT = 90% or less of midpoint, standard weight range.

OVERWEIGHT = 120%-135% of midpoint, standard weight range.

OBESE = 136% or more of midpoint, standard weight range.

24-HOUR FOOD RECALL

				THIS SIDE FOR OFFICE USE ONLY						
TIME	FOOD - BEVERAGE	HOW PREPARED	AMOUNT	D	M	VA	VC	F/V	G	O

FOOD FREQUENCY

If you eat one or more of the foods/beverages in the following groups, please indicate in the appropriate column how often they are eaten. Circle those eaten/drunk most often.

	DAILY	WEEKLY OR MORE	MONTHLY OR MORE	RARELY OR NEVER
Beef, hamburger, chicken, turkey, pork, ham, liver, fish, tuna, salmon, eggs, sausage, frankfurters, luncheon meats				
Meat/fish casseroles, stew, meat chow mein, macaroni and cheese, french toast, chili, pizza, taco, lasagna				
Milk (whole, 2%, skim, chocolate, buttermilk, dry, evaporated), cheese, cottage cheese, ricotta cheese, yogurt, ice cream, ice milk, milk shake, yogurt, cream soup				
Orange, grapefruit, tomato (fruit/juice), other juices with added Vitamin C, canteloupe, strawberries, tangerine, cabbage, red/green peppers				
Broccoli, greens (collard, beet, kale, mustard, turnip), carrots, bok choy, spinach, pumpkin, squash, sweet potatoes, yams, mixed vegetables, tomato sauce, sprouts				
Asparagus, beets, peas, pea pods, corn, green/yellow beans, lettuce, potato, tomato, okra				

Appendix E-2

	DAILY	WEEKLY OR MORE	MONTHLY OR MORE	RARELY OR NEVER
Apple, banana, cherries, grapes, plums, peaches, pears, honeydew, watermelon				
Whole wheat/oatmeal/bran bread, white (enriched) bread, cereals (cooked/ready-to-eat), cornbread, crackers, grits, fry bread, pita bread, granola, muffins, noodles, rice, pancakes, waffles				
Soft drinks, fruit-flavored drinks, lemonade, candy, cakes, pie, donut, brownie, cookie, pop tart, jelly, jam, honey, sugar				
Butter, margarine, salad dressing, mayonnaise, gravy, olives, cream, cream cheese, sour cream				
Beer, wine, wine coolers, liquor				

Appendix E-2 cont.

NAME_____

FOOD RECORD

Please write down everything you eat and drink, including the time and amount for ___ days before your next appointment.

DATE			DATE			DATE		
Time	Food/Beverage	Amount	Time	Food/Beverage	Amount	Time	Food/Beverge	Amount

Appendix E-3

DATE_____ NAME_____

FOOD RECORD FOR WEIGHT CONTROL

TIME	FOOD	HOW MUCH	WHERE	WITH	MOOD	HOW HUNGRY
EXAMPLES:						
9 a.m.	Candy Bar	1 large	School	Friend	tired	very
7 p.m.	Cola (regular)	1 can	Home	Family	"down"	a little
	Cookies (choc. chip)	3			bored	

DATE_____ NAME_____

EXERCISE RECORD

TYPE OF EXERCISE	HOW MUCH
Examples: Walked to and from work Danced Side bends, sit-ups, leg raises	 2 miles 1/2 hour 15 minutes

Appendix E-5

RECOMMENDED DAILY NUTRIENT INTAKES FOR WOMEN

Age (years)	Non-pregnant	Pregnant (Tri. 2-3)	Lactating (0-5 mo.)	Lactating (6-12 mo.)
Energy Kcal (average)				
	2200	2500	2700	2700
Protein g				
<15	46	60	65	62
15-18	44	60	65	62
19-24	46	60	65	62
≥ 25	50	60	65	62
Vitamin A RE				
All	800	800	1300	1200
Vitamin D ug				
11-24	10	10	10	10
≥ 25	5	10	10	10
Vitamin E mg				
All	8	10	12	11
Vitamin C mg				
11-14	50	70	95	90
≥ 15	60	70	95	90
Vitamin B_6 mg				
All	1.4-1.6	2.2	2.1	2.1
Vitamin B_{12} ug				
	2.0	2.2	2.6	2.6
Folate ug				
11-14	150	400	280	260
≥ 15	180	400	280	260
Calcium mg				
11-24	1200	1200	1200	1200
≥ 25	800	1200	1200	1200
Zinc mg				
All	12	15	19	16
Iron mg				
All	15	30	15	15

Modified from:

National Academy of Sciences: Recommended Dietary Allowances, 10th ed., Washington, D.C., 1989.

Appendix F-1

DAILY FOOD GUIDE FOR WOMEN

FOOD GROUP (servings/day)	NONPREGNANT		PREGNANT		LACTATING	
	Adult	< 18 yrs.	Adult	< 18 yrs.	Adult	< 18 yrs.
DAIRY PRODUCTS	3	4	4	4	4	4
MEATS, SUBSTITUTES	2	2	3	3	3	3
VITAMIN A SOURCE	3-4/wk.	3-4/wk.	1	1	1	1
VITAMIN C SOURCE	1	1	2	2	2	2
OTHER FRUITS/-VEGETABLES	2	2	2	2	2	2
WHOLE/ENRICHED GRAINS	4	4	4-6	4-6	4-6	4-6
FATS, OILS, SUGARS*	2	2	3-4	3-4	3-4	3-4

*To meet energy needs

Appendix F-2

VEGETARIAN DAILY FOOD GUIDE FOR WOMEN

	Nonpregnant				Pregnant/Lactating			
	Lacto-ovo		Vegan		Lacto-ovo		Vegan	
Food Group (servings/day)	**Adult**	**< 18 yrs**	**Adult**	**< 18 yrs**	**Adult**	**< 18 yrs**	**Adult**	**< 18 yrs**
Dairy Products/Fortified soy milk	3-4	4	3-4	4	4	5	4	5
Meat Alternatives	2	2	2/4*	2/4*	3	3	3/5*	3/5*
Fruits/Vegetables								
Vitamin C Source	1	1	1	1	2	2	2	2
Dark green leafy	1	1	2	2	1	1	3	3
Other	2	2	3	3	2	2	3	3
Whole Grains	4	4	5/7*	5/7*	6	6	6/8*	6/8*
Fats/Oils	2	2	2	2	3-4	3-4	3-4	3-4

* When soy milk not used.

Appendix F-3

SAMPLE MENU FOR PREGNANT ADULT

	Nonvegetarian	Vegetarian (lacto-ovo)
Breakfast	1 c. iron fortified cereal 1/2 banana 1 c. milk	1 c. iron fortified cereal 1/2 banana 1 cup milk
Snack	1 slice whole grain toast 2 Tbsp. peanut butter 1 c. orange juice	1 slice whole grain toast 2 Tbsp. peanut butter 1 c. orange juice
Lunch	turkey sandwich (2 oz. turkey, 2 slices whole grain bread, mayonnaise) 1 c. milk	egg salad sandwich (whole grain bread) 1 c. milk
Snack	1 c. yogurt	1 c. yogurt 1 oz. peanuts & sunflower seeds
Dinner	3 oz. meatloaf 1 baked potato, margarine 1/2 c. green beans 1 c. spinach salad, dressing 1 c. apple juice	1 c. chili 2 pieces cornbread 1 c. spinach salad, dressing 1 c. apple juice
Snack	2 oatmeal cookies 1 c. milk	2 oatmeal cookies 1 c. milk

Appendix F-4

SERVING SIZES AND APPROXIMATE NUTRIENT COMPOSITION OF FOOD GROUPS

DAIRY PRODUCTS AND SUBSTITUTES

(Approximately 300 mg calcium per serving)

Food:	Serving Size:	Food:	Serving Size:
Cheese	1-1/2 ounces/slices	Ice milk, soft serve	1-1/4 cups
Cheese food or spread	2 ounces/slices	Kefir	1 cup
Cottage cheese	2 cups	Milk, (whole, 2%, 1%,	1 cup
Cream soup (milk based)	1-1/2 cups	skim, chocolate, buttermilk)	1 cup
Dry milk	1/3 cup	Milkshake	1 cup
Egg nog	1 cup	Pudding (mix or homemade)	1 cup
Evaporated milk	5 ounces	Ricotta cheese (part skim)	1/2 cup
Fortified soybean milk	1 cup	Tofu	8 ounces
Ice cream	2 cups	Yogurt	1 cup
Ice milk	2 cups		

MEATS AND SUBSTITUTES

(Approximately 14 g protein per serving)

Animal

Canadian bacon, ham	2 ounces	Liver, organ meats	2 ounces
Casseroles, mixed dishes	1 cup	Luncheon meats	4 slices
Burrito	1	Meat (lean)	2 ounces
*Cheese	2 ounces	Meat loaf, meat balls	3 ounces
*Cottage/ricotta cheese	1/2 cup	Pot pie	1
Eggs	2	Pizza	1 / 4
Enchilada (meat)	2	Poultry	2 ounces
Fish	2 ounces	Salmon, tuna	1/2 cup
Fish sticks	4	Sausage links	4
Frankfurters	2	Soup, homemade with meat	1-1/2 cups
French toast	2 slices	Taco	2
Lasagna	1 cup		

Vegetable

Humous	2 Tbsp.	Peanuts	2 oz./1/4 cup
Legumes (lentils, red beans, navy beans, pinto beans, lima beans, garbanzos, black-eyed-peas)	1 cup cooked	Peanut butter	4 tablespoons
		Pumpkin, sunflower seeds (shelled)	2 ounces
Meat analog	3 ounces	Soups - bean, lentil	2 cups
Nuts	1 cup	Soybeans	2/3 cup
		Tofu	7 ounces

* Do not use as dairy product and meat substitute simultaneously.

Appendix F-5

FRUITS/VEGETABLES

Food:	Serving Size:
VITAMIN A SOURCES	
(Approximately 1000 RE per serving)	
Broccoli	2 large stalks
Carrot	1 small
Greens (beet, collard, chard, kale, dandelion, mustard, spinach, turnip)	1/2 cup cooked
Chili peppers	1 ounce
Mixed vegetables	1/2 cup
Pumpkin	1/2 cup
Sweet potato	1 small
Tomato	3 large
Tomato sauce	1/2 cup
Winter squash (butternut, hubbard, acorn)	3/4 cup
Apricots	4 halves
Cantaloupe	1/3 small
Mango	1/2 medium
Liver	1/2 ounce
Liverwurst	3-1/2 ounces
VITAMIN C SOURCES	
(Approximately 50 mg ascorbic acid per serving)	
Broccoli, brussels sprouts	1/2 cup
Cabbage	1 cup shredded raw or cooked
Cantaloupe	1/3 small
Cauliflower	1/2 cup
Greens (collards, kale, mustard)	1/2 - 3/4 cup cooked
Grapefruit	1/2 medium
Juices	
Orange, grapefruit	1/2 cup
Pineapple	1 cup
Tangerine, tomato, V-8 juice	1 cup
Juices fortified with vitamin C (apple, cranberry, grape, etc.)	1 cup
Orange	1 small
Papaya	1/3 medium
Peppers (red, green)	1/2 large
Strawberries	1/2 cup
Tangerine	2 medium
Tomato	1 large
OTHER	
Banana	1 small
Bean sprouts	1/2 cup
Canned fruit	2 halves or 1/2 cup
Dried fruit	4 halves
Fresh fruit	1 medium
Grapes, berries, cherries	1/2 cup
Potato	1 medium

Appendix F-5 cont.

WHOLE OR ENRICHED GRAIN PRODUCTS
(Approximately 3 g protein)

Food:	Serving Size:
Bagel	1/2
Biscuit	1
Bread	1 slice
Bulgar	1/4 cup
Bun (hamburger, frankfurter)	1/2
Cereals	
Cooked	1/2 cup
Cold	3/4 cup
Cornbread	2" square
Crackers	4 small
English muffin	1/2
Graham crackers	3 squares
Granola	1/2 cup
Macaroni, noodles, spaghetti, grits	1/2 cup cooked
Muffin	1
Pancake, waffle	1 medium
Pita	1
Rice (brown, white, wild)	1/2 cup cooked
Roll	1
Tortilla	1
Wheat berries	1/3 cup
Wheat germ	1 tablespoon

OTHERS

Bacon	1 strip
Butter, margarine	1 teaspoon
Cream cheese, whipping cream	1 tablespoon
Gravy	2 tablespoons
Vegetable oils, lard, shortening	1 tablespoon
Olives	5 small
Sour cream, half and half	2 tablespoons
Salad dressings	1 tablespoon
Salad dressing, mayonnaise	1 tablespoon
Potato chips and other fried snack items	1 cup
Cakes, pies, desserts	1 piece or 1/2 cup
Candy	1 bar, 2 pieces or 1 small package
Cookies	2
Carbonated or sweetened beverages	1 cup
Donuts or sweet rolls	1
Sugar	2 teaspoons
Jelly, jam, honey	1 teaspoon

REFERENCES

Truesdell D, Whitney E, Acosta P: Nutrients in vegetarian foods. JADA, 84:28,1984.
Pennington J, Nichols Church H: Food Values of Portions Commonly Used, 14th ed., Harper Row, New York, 1985.

Appendix F-5 cont.

PLANT PROTEIN COMBINATIONS

PROTEIN COMBINATIONS	EXAMPLES	PROTEIN (g)
Legumes (soybeans, lentils, black-eyed peas, split peas, garbanzo beans, soybeans, dried beans, peanuts) & Grains (wheat, corn, rice, oats, barley, rye)	1 cup cooked red beans + 1 cup cooked rice	19
	1 cup split pea soup + 2 slices rye bread	7
	1 cup chili + 2 pieces cornbread	30
	2 corn tortillas + 1/2 cup cooked rice + 1/2 cup cooked pinto beans	15
Grains & Milk Products	1 cup cereal + 1 cup milk	12
	2 slices cheese pizza	10
	1 cup macaroni and cheese	17
	1 grilled cheese sandwich	15
Legumes & Seeds (pumpkin, sunflower, sesame)	1 ounce shelled sunflower seeds + 1 ounce peanuts	17

Source: Pennington J, Church H: Food values of proteins commonly used. Harper & Row, New York, 1985.

FOOD SOURCES OF IRON

Liver, organ meats
Clams, oysters, sardines
Beef, pork
Pork and beans
Chili con carne
Spinach
Blackstrap molasses
Raisins, dried appricots/figs/prunes
Prune juice
Dried peas, beans
Fortified breakfast cereals:

- Body Buddies
- Cheerios
- Chex (corn, rice, wheat)
- Country Corn Flake
- Cream of Wheat
- Crispie Critters
- Grape Nuts
- Grape Nut Flakes
- Instant Quaker Cream of Wheat
- Just Right
- Kaboom
- Kelloggs Bran Flakes
  * Shredded Wheat Squares
  * Raisin Squares
  * 40% Bran Flakes
- King Vitamin
- Kix
- Life
- Maltex
- Malt-O-Meal
- Malt-O-Meal Puffed Rice/Wheat
- Maypo
- Post Fortified Oat Flakes
- Post Natural Bran Flakes
- Product 19
- Shurfine 40% Bran Flakes
- Team Flakes
- Toasties
- Total
  * Cornflakes
  * Raisin Bran
  * Oatmeal

FOOD SOURCES OF FOLATE

Fortified Breakfast Cereals
Black-eyed peas
Broccoli
Orange Juice
Asparagus
Greens (collard, turnip, kale, mustard)
Pineapple juice
Liver, organ meats
Brussel's sprouts
Avocado
Peas (frozen)
Cauliflower
Spinach

(Vegetables should be eaten raw or cooked briefly in a small amount of water.)

Appendix F-7

FOOD SOURCES OF FIBER

Fresh Fruits/Vegetables (including skins when possible)

apple, apricot, banana, berries, grapes, grapefruit, orange, peach, pear, pineapple, tangerine

asparagus, bean sprouts, broccoli, brussels sprouts, cabbage, carrots, cauliflower, celery, corn, cucumber, green beans, leafy greens, okra, peppers, potato (with skin), squash, sweet potato, tomato

Dried Fruits

apples, dates, figs, peaches, pears, prunes

Dried Beans, Peas, Lentils

black-eyed peas
black beans
garbanzo beans
great northern beans
kidney beans
lima beans
navy beans
pinto beans
split peas

Whole Grains

barley, bran, brown rice, buckwheat, bulgar, cornmeal, grits, graham, millet, oatmeal, oatbran, rye, whole wheat, wheat germ, wheat berries, cracked wheat, wild rice

Whole Grain Crackers

Ak mok Sesame crackers, Graham crackers, Ry Krisp, Triscuits, Stoned Wheat Crackers, Wheatsworth, whole wheat/bran matzos, oat bran crackers

Misc.

bran muffin, granola bar, nuts, oatmeal cookies, popcorn, peanuts, seeds (sesame, sunflower, pumpkin), trail mix, whole wheat pasta

Note: Increase fiber intake gradually, drink fluids liberally, avoid excessive amounts of fiber.

Appendix F-8

NUTRIENT, ENERGY-DENSE FOODS

Dairy Products/Substitutes:

whole milk, flavored milk, hot chocolate, malts, shakes, ice cream, fruited yogurt, custard, pudding, egg nog (commercial), breakfast drinks, cottage cheese and fruit, cheeses, cream soups, dry milk solids (added to beverages, cooked cereal, mashed potatoes, casseroles, etc.).

Meats/Substitutes:

nuts, nut butters, trail mix, humous, sunflower/pumpkin seeds, baked beans, bean/split pea soup, pizza, lasagna, chili, spaghetti with meat sauce, macaroni and cheese, egg salad, deviled egg, omelet, quiche, chicken/bean/tuna salad, creamed ham/chicken/tuna on toast, cheeseburger, submarine sandwich, fried meats, meats/fish/poultry with gravies, sauces

Fruits/Juices:

dried raisins/dates/apricots/prunes/figs/peaches/pears; banana, nectars, avocado, fruit canned in heavy syrup, fruit salads, fruit pie/cobbler

Vegetables:

potato (au gratin/mashed/fried), squash, sweet potato/yam, corn, peas, potato salad, vegetables with cream/cheese sauces

Grains:

pancakes, waffles, french toast, muffins, biscuits, dumplings, stuffing, cooked cereals (made with milk), crackers with cheese/-peanut butter, corn bread, granola, granola bars, nut breads, oatmeal/peanut butter/molasses cookies, bread/rice puddings

NUTRIENT-DENSE, LOW ENERGY FOODS

Dairy Products/Substitutes:

Skim, 1% milk, buttermilk, non-fat dry milk, evaporated skim milk, low-fat cheeses (e.g. farmer's, pot, skim milk American, Alpine Lace, etc.), low-fat cottage, ricotta cheese, low-fat/artificially sweetened yogurt, ice milk, frozen yogurt

Meats/Substitutes:

Chicken, turkey without skin, fish, shellfish, lean meats (baked, broiled, steamed, grilled, roasted without fat), water-packed tuna, soups, dried beans

Fruits/Juices:

Fresh, juice packed without sugar, unsweetened juices

Vegetables:

Fresh, frozen, canned without cream/butter sauces (e.g. asparagus, green beans, broccoli, cabbage, greens, peppers, baked potato, spinach, tomato), raw vegetables, salads with low/reduced calorie salad dressings, coleslaw with reduced calorie mayonnaise, tomato/vegetable juice cocktail

Grains:

French/Italian bread, whole grain bread, thinly sliced bread, unsweetened cereals, low-fat crackers, mini pocket bread, small dinner rolls, rice, pasta, unbuttered air-popped popcorn

FOODS HIGH IN SODIUM

Condiments

salt, seasoned salts, M.S.G., barbecue/chili/cocktail/soy/steak/-terriyaki/Worcestershire sauce, catsup, prepared mustard

Processed Cheese/Cheese Spreads

Canned/Frozen Entrees

Fast Foods

Cured/Pickled/Smoked Fish, Meat, Poultry

anchovies, bacon, dried beef, corned beef, frankfurters, ham, ham hocks, herring, luncheon meats, sardines, salt pork, sausage

Olives, Pickles

Pizza

Salted Snack Foods, Crackers, Nuts

Sauerkraut

Canned/Dried Soups

Tomato/V-8 Juice, Canned Tomato Sauce

FOODS HIGH IN CHOLESTEROL/SATURATED FAT

- Liver/organ meats
- Sausage/bacon/frankfurter
- Regular ham, luncheon meats
- Prime/fatty cuts of meat
- Chicken/turkey skin
- Cheese/cheese spreads
- Whole/2% milk
- Ice cream/custard/pudding
- Whole milk yogurt/cottage cheese
- Cream/sour cream/1/2 & 1/2
- Whipped topping/non-dairy creamer
- Cream cheese
- Butter, lard, solid shortenings
- Gravies; cheese/butter/cream sauces
- Bacon/chickenfat/saltpork/lard
- Coconut/palm/palm kernel oil
- Commercial biscuits, muffins, pancakes, waffles, croissants/-pastries, desserts, donuts, most crackers
- Chocolate
- Coconut

Appendix F-12

CAFFEINE CONTENT OF FOODS/BEVERAGES

	mg Caffeine range	mean
Coffee - 5 oz.		
drip	110-150	130
percolated	64-124	94
instant	40-108	74
decaffeinated	2-5	3.5
Tea - 5 oz.		
1 minute brew	9-33	21
3 minute brew	20-46	33
iced tea (12 oz. can)	22-36	
Cocoa/Chocolate		
hot cocoa - 6 oz.	2-8	5
chocolate milk - 8 oz.	2-7	4.5
milk chocolate - 2 oz.	2-30	16
dark sweet chocolate - 2 oz.	10-70	40
Soft Drinks - 12 oz.		
Jolt	72	
Sugar-free Mr. Pibb	59	
Mountain Dew	54	
Mello Yello	53	
Tab	47	
Coca Cola	46	
Others (Shasta cola, Mr. Pibb, Dr. Pepper, R.C., Big Red, Pepsi, Diet Rite)	30-44	37

Source:

A scientific status summary by the Institute of Food Technologists' Expert Panel on Food Safety and Nutrition, Institute of Food Technologists, 221 LaSalle Street, Chicago, Illinois, 60601, June 1987.

Appendix F-13

FAST FOOD

A NUTRITION GUIDE

	FOOD ENERGY (CALORIES)	FAT (TEASPOONS)	SALT (TEASPOONS)
ARBY'S			
Bacon Cheddar Deluxe	561	9	.6
Beef 'N Cheddar	490	5	.7
Chicken Breast	592	7	.6
Chicken Club	621	8	.6
Chicken Salad	386	5	.2
Chicken Salad and Croissant	472	9	.3
Hot Ham 'N Cheese	353	3	.7
Junior Roast Beef	218	2	.2
King Roast Beef	467	5	.3
Regular Roast Beef	353	4	.3
Super Roast Beef	501	6	.3
Turkey Deluxe	375	4	.4
French Fries	211	2	*
BURGER KING			
Bacon Double Cheeseburger (C)	510	8	.3
Cheeseburger	317	4	.3
Chicken Specialty	688	10	.6
Ham and Cheese	471	6	.7
Hamburger	275	3	.2
Whaler	488	7	.3
Whaler with Cheese	530	9	.3
Whopper	628	9	.4
Whopper with Cheese	711	11	.5
Double Beef Whopper	850	13	.5
Double Beef Whopper with Cheese	950	15	.7
Whopper Junior	322	4	.2
Whopper Junior with Cheese	364	5	.3
Chicken Tenders (6 pieces)	204	3	.3
French Fries (regular	227	3	*
Onion Rings (regular	274	4	.3

	FOOD ENERGY (CALORIES)	FAT (TEASPOONS)	SALT (TEASPOONS)
SHAKES (regular)			
Vanilla (S)	321	3	.1
Chocolate (S)	320	3	.1
Vanilla, added syrup (S)	334	3	.1
Chocolate, added syrup (S)	374	3	.1
DAIRY QUEEN			
Banana Split (S)	540	4	*
Blizzard, "Heath" regular (S)	800	6	.1
Blizzard, "Heath" large (S)	1200	9	.2
Buster Bar (S)	460	7	*
"Chipper" Sandwich	318	2	*
Cone, small (S)	140	1	*
Cone, regular (S)	240	2	*
Cone, large (S)	340	3	*
Dipped Cone, small (S)	190	2	*
Dipped Cone, regular (S)	340	4	*
Dipped Cone, large (S)	510	6	*
Dilly Bar (S)	210	3	*
Double Delight (S)	490	5	*
DQ Sandwich (S)	490	5	*
Float (S)	410	2	*
Freeze (S)	500	3	*
Fudge Nut Bar (S)	406	6	*
Hot Fudge Brownie Delight (S)	600	6	*
Malt, Chocolate - small (S)	520	3	*
Malt, Chocolate - regular (S)	760	5	.1
Malt, Chocolate - large (S)	1060	6	.2
Mr. Misty - small (S)	190	- -	*
Mr. Misty - regular (S)	250	- -	*
Mr. Misty - large (S)	340	- -	*
Mr. Misty Kiss (S)	70	- -	*
Mr. Misty Freeze (S)	500	3	*
Mr. Misty Float (S)	390	2	*
Parfait (S)	430	2	*
Peanut Buster Parfait (S)	740	9	.1
"Queen's Choice" Vanilla Cone (S)	322	4	*
"Queen's Choice" Chocolate Cone (S)	326	4	*
Shake, Chocolate - small (S)	490	4	*
Shake, Chocolate - regular (S)	710	5	.1

Appendix F-14 cont.

	FOOD ENERGY (CALORIES)	FAT (TEASPOONS)	SALT (TEASPOONS)
Shake, Chocolate - large (S)	990	7	.2
Strawberry Shortcake (S)	540	4	*
Sundae, Chocolate - small (S)	190	1	*
Sundae, Chocolate - regular (S)	310	2	*
Sundae, Chocolate - large (S)	440	3	*
HARDEE'S			
Bacon Cheeseburger (C)	686	11	.5
Big Deluxe	516	7	.5
Cheeseburger	335	4	.3
Chicken Fillet	510	7	.2
Fisherman's Fillet	469	5	.4
Hamburger	305	3	.3
Hot Dog	316	6	.3
Hot Ham "N" Cheese	376	4	.5
Mushroom "N" Swiss	512	6	.5
Roast Beef	377	4	.5
Big Roast Beef	418	5	.8
Turkey Club	426	6	.5
MCDONALD'S			
Big Mac	570	9	.4
Cheeseburger	318	4	.3
Filet O'Fish	435	7	.2
Hamburger	263	3	.2
McDLT (C)	680	11	.4
Quarter Pounder	427	6	.3
Quarter Pounder with Cheese (C)	530	8	.5
TACO BELL			
Bean Burrito	360	4	.4
Beef Burrito	402	4	.4
Combo Burrito	381	4	.4
Burrito Supreme	422	5	.4
Double Beef Burrito Supreme	464	6	.5
Bellbeefer	312	3	.4
Enchirito	382	3	.5
Fajita Steak Taco	235	3	.2
with sour cream & guacamole	315	4	.3
Taco	184	3	.1

Appendix F-14 cont.

	FOOD ENERGY (CALORIES)	FAT (TEASPOONS)	SALT (TEASPOONS)
Taco Bellgrande	351	6	.2
Taco Light	411	7	.3
Soft Taco	228	3	.2
Tostada	243	3	.3
Beefy Tostada	316	5	.3
Burrito Supreme Platter	774	9	.8
Taco Bellgrande Platter	990	13	.9
Taco Light Platter	1062	15	.9
Taco Salad	949	16	.8
Taco Salad with Ranch Dressing (C)	1167	22	.9
Seafood Salad	648	11	.4
Seafood Salad with Ranch Dressing (C)	884	17	.6
Cheesearito	312	3	.2
Mexican Pizza	714	12	.6
Nachos	356	5	.2
Nachos Bellgrande	719	10	.6
Pintos & Cheese	194	2	.3
Cinnamon Crispas	266	5	.4
WHITE CASTLE			
Cheeseburger	200	3	.2
Chicken	185	2	.2
Fish (no tartar sauce)	155	1	*
Hamburger	161	2	.1
French Fries	301	4	*
Onion Chips	329	4	.4
Onion Rings	245	3	.2

* (less than 1/10 teaspoon salt)
-- (none)

CONSUMER PRODUCT INFORMATION, FAST FOOD COMPANIES, 1987.

Appendix F-14 cont.

PRENATAL VITAMIN/MINERAL SUPPLEMENT
(Recommended Composition)

Iron	30 mg elemental
Folate	300 ug
Calcium	200-250 mg (not calcium phosphate)
Zinc	15-25 mg
Magnesium	20-100 mg
Copper	2 mg
Vitamin B_6	2-10 mg
E	15-30 mg
C	50-100 mg
A	4000-5000 iu (not first trimester)
B_{12}	2-12 ug
D	5-10 ug
Riboflavin	1.5 - 4 mg
Thiamin	1.5 - 4 mg
Niacin	15-20 mg

Modified from:

Newman V, Lynn RB, Anderson P: Evaluation of prenatal vitamin-mineral supplements. Clin Pharmacy, 6:770-7, 1987.

Appendix G-1

EXAMPLES OF IRON SUPPLEMENTS FOR PREGNANCY
(RELATIVELY LOW-COST INDEX)

SUPPLEMENT	ELEMENTAL IRON	RECOMMENDED DOSAGE PREVENTION*	TREATMENT
TABLETS:			
Ferrous Sulfate 325 mg	65 mg	----	1 tid
Ferrous Gluconate 300 mg	35 mg	1 gd	2 tid
Ferrous Fumarate 325 mg	106 mg	----	1 bid
TIMED-RELEASE CAPSULES			
Ferrous Sulfate 250 mg	50 mg	----	1 qid
Fero-Gradumet Filmtabs 525 mg. (Abbott)	105 mg	----	1 bid
Span-FF 325 mg. (Metro Med)	106 mg	----	1 bid
CHEWABLE:			
Feostat 100 mg (Forest)	33 mg	1 qd	2 tid
LIQUID (pint)			
Ferrous Sulfate Elixir 220 mg.	44 mg/tsp.	----	1-1/2 tsp. tid
**Fergon Elixir 300 mg	35 mg/tsp.	1 tsp. qd	2 tsp. tid
IRON AND STOOL SOFTENER:			
Ferro-DSS 150 mg (Geneva Generics)	50 mg + 100 mg ducosate sodium	1 qd	1 qid

* If prenatal vitamin not taken
** Higher cost index

Modified from: Drug Facts and Comparisons, J.B. Lippincott Company, St. Louis, 1988.

EXAMPLES OF CALCIUM SUPPLEMENTS FOR PREGNANCY

SUPPLEMENT	ELEMENTAL CALCIUM	RECOMMENDED DOSAGE**
Tablets		
Calcium Citrate Citracal (Mission) 950 mg	200 mg	1 tid
Calcium Carbonate Cal-Sup 600 (3M personal care) 1.5 g	600 mg	1 qd
BioCal (Miles Labs) 1.25 g	500 mg	1 qd
Os-Cal 500 (Marion) 1.25 g	600 mg	1 qd
Caltrate 600 (Lederle) 1.5 g	600 mg	1 qd
Chewable		
Calcium Carbonate Biocal Chewable 625 mg (Miles Labs)	250 mg	1 bid
Calci-Chew (R & D) 1.25 g	500 mg	1 qd
Os-Cal 500 (Marion) 1.25 g	500 mg	1 qd
Suplical (Parke-Davis) 1.5 g	600 mg	1 qd
Liquid (pint)		
Calcium gluconate Neo-Calglucon syrup 1.8 g (Sandoz)	345 mg/Tbsp	1 Tbsp bid

Modified from:
Drug Facts and Comparisons, J. B. Lippincott Company, St. Louis, 1988.

** Excluding amount of calcium in prenatal vitamin.

Appendix G-3

GLUCOSE SCREEN

It is recommended that every pregnant woman have a simple test called a glucose screen to see if she may have gestational or pregnancy-related diabetes. The glucose screen is usually done around the 7th month of pregnancy. The test may be done earlier, though, and it may be necessary to have it done more than once.

The test is done by measuring the amount of sugar in the blood in one blood sample, taken from the arm one hour after drinking a sweet liquid. (It doesn't matter if you have eaten before the test, but you should not eat, or drink anything but water during the test).

If the amount of sugar in the blood is high (above 140), you will be asked to have a more complete test, the glucose tolerance test. Only by having this longer test can we know if you have gestational diabetes.

Appendix H-1

GLUCOSE TOLERANCE TEST

On _____, _____, at _____A.M., you will be having a glucose tolerance test. This test will show how well your body handles sugar. The test will last 3 hours.

The test will consist of:

1. Having a sample of blood drawn from your arm.
2. Drinking a sweet liquid.
3. Having a sample of blood drawn 1, 2 and 3 hours after drinking the liquid.

To make the test more accurate:

1. For 3 days before the test, _____, _____, _____, eat foods high in carbohydrate (starch and/or sugar). A sample menu is below. The foods that contain carbohydrate are starred. Choose foods to give you at least 15 points of carbohydrate each day. Other foods can be used if needed.
2. Do not eat or drink anything but water after midnight on _____, the night before the test. Do not eat breakfast or eat or drink anything except water before or during the test. Do not smoke or chew gum before or during the test. It is also important to sit quietly during the test.

SAMPLE MENU

BREAKFAST	**POINTS**
* 1 bowl of cereal with milk and sugar	2
* 1 slice of toast with jelly, jam or honey	2
* 1 small glass of fruit juice, or fresh or canned fruit	1
* 1 cup of milk	1
LUNCH	
* 1 sandwich (2 slices of bread or bun)	3
* 1 cup of milk	1
* Fresh or canned fruit	1
DINNER	
Meat, fish or chicken	
* 1 serving of potatoes or rice	1
* 1 slice of bread, roll, tortilla or cornbread	1
OR	
* Sandwich (2 slices of bread)	3
OR	
* 1 large serving of casserole (containing noodles, macaroni or rice)	2
Vegetable	
* 1 cup of milk	1
SNACK	
* 1 cup of milk or juice	1
	15-16

Appendix H-2

EATING PLAN FOR DIABETES OF PREGNANCY

Pregnancy places added stress on a woman's body. During pregnancy, some women cannot handle sugar well, and the amount of sugar in the blood becomes too high. This is called "gestational diabetes" or diabetes of pregnancy.

To help assure a healthy pregnancy, it is very important for women with this condition to keep the amount of sugar in the blood as normal as possible. To do this:

Eat healthy foods divided into three, regular meals and, if needed, two to three snacks. Breakfast is especially important. Be sure to include foods from each of the four food groups at each meal (meats or substitutes, dairy products, fruits/vegetables, grains).

Eat the amount of food needed to gain the right amount of weight (about one pound each week).

Eat foods high in fiber, such as whole wheat bread, bran cereals, oatmeal, fresh fruits and raw vegetables (include skins when possible).

Exercise. One excellent way to do this is by walking after meals.

Limit foods high in fat, like fried foods, margarine, oils, etc.

Avoid sweets and sugar.

Sweet foods include:	Instead, try substituting:
Soft drinks, Kool Aid, fruit-flavored drinks, chocolate milk, lemonade, sweet seltzer water	milk, fruit juices, club soda, mineral water, diet soft drinks
sugar coated cereals, sweet rolls, frosted or sugar donuts, pop tarts	unsweetened cereals, corn-bread, biscuits, buns, tortillas, muffins, English muffins, bagels
canned fruit in heavy syrup	fresh fruit or fruit packed in juice
cakes, cookies, pies, jello, puddings, candy, popsicles, sherbert, ice cream bars, and other frozen desserts, other sweets	small serving of angel food or sponge cake, plain cookies, vanilla ice cream or flavored yogurt (with meals), or graham crackers, peanuts or popcorn
sugar, honey, molasses, jelly, jam, marshmallows, syrups, ice cream toppings	margarine, butter, peanut butter, applesauce, cheese spread, mayonnaise, sugar substitutes (Equal), fruit spreads

Read food labels: If one of the first two ingredients listed on a food label is sugar, don't eat the product. Besides sugar, some of the common words that mean sugar on a food label are: honey, molasses, glucose, sucrose, brown sugar, corn syrup, dextrose, fructose and invert sugar.

Appendix I-1

SAMPLE MENU
(APPROXIMATELY 2,400 CALORIES)

MORNING	1/2 cup fresh fruit **or** juice 1 egg **or** 3/4 cup bran cereal 1 slice whole wheat toast with 1 tsp margarine 1 cup 2% milk
NOON	3 oz. meat, chicken, fish, **or** cheese 2 slices whole wheat bread **or** 8 crackers 2 tsp margarine 1 cup vegetable (soup **or** raw salad) 1 cup 2% milk
AFTERNOON SNACK	1 cup fruit juice 2 slices cheese and 8 whole wheat crackers 1 cup carrot and celery sticks
EVENING	{4 oz. meat, chicken, fish and 1/2 cup rice, macaroni, noodles, potato} **or** 2 cups casserole 1/2 cup vegetable **or** 1 cup salad 1 slice whole wheat bread 1 tsp margarine 1 piece fresh fruit 1 cup 2% milk
EVENING SNACK	1 piece fresh fruit **or** 1/2 meat sandwich on whole wheat bread 1 cup 2% milk

After your baby is born, your blood sugar should go back to normal. To make sure this has happened, you will again be tested about two months after delivery. If you are overweight, it is important to lose weight after you have your baby. This will help protect you against developing diabetes in the future. Your nutritionist can help you with a plan for food and exercise.

Appendix I-2

CALCULATED DIABETIC DIET

1. Determine calories/kg pregnant body weight (see 2.5, Insulin Use Guidelines).
2. Determine grams of protein, fat and carbohydrate.
3. Based on client food preferences and eating pattern, determine meal plan using American Diabetes Association/American Dietetic Association food exchange lists. Assure appropriate distribution of carbohydrate.

DISTRIBUTION OF ENERGY AS PROTEIN (20%), FAT (30%), CARBOHYDRATE (50%) FOR VARIOUS ENERGY LEVELS

ENERGY (calories/day)	PROTEIN (g)	FAT (g)	CARBOHYDRATE (g)
2300	115	77	288
2400	120	80	300
2500	125	83	313
2600	130	87	325
2700	135	90	338
2800	140	93	350

FOOD EXCHANGE LISTS

(Groups of foods containing comparable amounts of energy, protein, fat and carbohydrate)

FOOD EXCHANGE	ENERGY(kcal)	PROTEIN(g)	FAT(g)	CARBOHYDRATE(g)
BREAD/STARCHY FOODS	80	3	-	15
MEAT				
Low Fat	55	7	3	-
Medium Fat	75	7	5	-
High Fat	100	7	8	-
MILK				
Skim/1%	90	8	-	12
2%	120	8	5	12
Whole	150	8	8	12
FRUIT	60	-	-	15
VEGETABLE	25	2	-	5
FAT	45	-	5	-

Modified from Diabetes Association/American Dietetic Association, 1986.

Appendix J-1

EXAMPLE OF NUMBER OF FOOD EXCHANGES PROVIDING APPROPRIATE AMOUNT OF PROTEIN, FAT, CARBOHYDRATE AT VARIOUS ENERGY LEVELS

NUMBER OF FOOD EXCHANGES	Kcal 2300	2400	2500	2600	2700	2800
Bread/Starchy Foods	10	10	10	11	11	11
Meat-Medium Fat	7	7	7	8	8	9
Milk-2%	4	4	4	4	4	4
Fruit	5	6	6	6	6	7
Vegetable	4	4	5	4	5	5
Fat	4	4	5	4	5	5

List of foods included in each exchange available from: American Dietetic Association, 430 North Michigan Avenue, Chicago, Illinois, 60611.

Appendix J-2

EXAMPLE OF DIABETIC DIET CALCULATION

148 pounds, normal prepregnant weight

ENERGY: 67 kg x 36 = 2400 kcal

ENERGY DISTRIBUTION: 120 g protein, 80 g fat, 300 g carbohydrate

CARBOHYDRATE DISTRIBUTION: 75 g morning, 75 g noon, 15 g mid-afternoon, 90 g evening, 45 g bedtime

	No. Exchanges	g Carbohydrate	Sample Menu
Breakfast:			
Bread/Starchy Food	2	30	1 slice toast + 3/4 c. cold cereal
Milk-2%	1	12	1 c. 2% milk
Fruit	1	15	1/2 c. orange juice
Fat	1	-	1 tsp. margarine
Snack:			
Fruit	1	15	1 peach
		72	
Lunch:			
Bread/Starchy Food*	2	30	1 c. casserole*
Meat-medium fat*	2	-	
Milk-2%	1	12	1 c. 2% milk
Fruit	2	30	1 banana
Vegetable	1	5	1 raw carrot
Fat*	1		
		77	
Snack:			
Bread/Starchy Food	1	15	3 c. popcorn (no oil or butter)
Dinner:			
Bread/Starchy Food	3	45	1 small roll, 2/3 c. sweet potato
Meat-medium fat	4	-	4 oz. pork chop
Milk-2%	1	12	1 c. 2% milk
Fruit	2	30	1/2 c. applesauce & pear halves
Vegetable	2	10	1/2 c. broccoli & 1 c. mixed vegetable salad with 2 tbsp. low cal. dressing
Fat	1	-	1 tsp. margarine
		97	
Bedtime Snack:			
Bread/Starchy Food	2	30	2 slices whole wheat
Meat-medium fat	1	-	1 ounce turkey
Milk-2%	1	12	1 cup 2% milk
Vegetable	1	5	1 tomato
Fat	1	-	1 tsp. margarine
		47	

HYPOGLYCEMIA (LOW BLOOD SUGAR)

Low blood sugar can develop quickly, usually within minutes!

CAUSES:
TOO LITTLE FOOD
TOO MUCH INSULIN
TOO MUCH EXERCISE

SIGNS:	**EARLY:**	**LATER:**	**IF NOT TREATED:**
	Crankiness	Blurred Vision	Passing Out
	Hunger	Slurred Speech	
	Headache	Confusion	
	Shakiness	Staggering	
	Weakness		
	Dizziness		
	Rapid Heart Beat		
	Sweating		

WHAT TO DO:

1. Eat a Fast Sugar Food right away to get sugar into your blood.
   FAST SUGAR FOODS (Choose 1)
   - 3 D Glucose Tablets
   - 1 cup REGULAR soft drink
   - 1 cup orange/apple juice
   - 3 tablespoons honey
   - 3 tablespoons corn syrup
2. Sit or lie down
3. If you do not feel better after 15 minutes, take the same amount of food again.
4. If you still do not feel better, call your doctor, nurse, or dietitian right away.
5. Within one half hour of feeling better, eat a snack with protein in it or your regularly scheduled meal.
   PROTEIN SNACK (Choose 1)
   - 1 slice of cheese and 1 piece of fruit
   - 1 cup of skim milk and 6 crackers
   - 1 cup of skim milk and 1/2 sandwich

REMEMBER TO ALWAYS CARRY A FAST SUGAR FOOD WITH YOU!

Modified from St. Paul-Ramsey Medical Center's Diabetic Education/Endocrinology Services, 1989.

Appendix K

COMPONENTS OF WEIGHT GAIN IN PREGNANCY
(pounds)

FETAL	6.6 - 8.5
PLACENTA	1.5 - 2
AMNIOTIC FLUID	2
BREASTS	1 - 1.5
UTERUS	2 - 2.5
BLOOD	4
FLUID	4 - 8
MATERNAL NUTRITION STORES	4 - 6
	25.1 - 34.5

Appendix L

POTENTIAL ADVERSE EFFECTS OF PICA IN PREGNANCY

Pica Substance	Content	Potential Adverse Effects
Baking soda	Sodium Alkali	Excess sodium load, alkalosis, Milk Alkali Syndrome (with high calcium intake)
Cigarette butts	Nicotine	Nicotine toxicity
Clay, dirt	Bacteria, parasites, mercury, lead	Bacterial/parasitic infection, mercury/lead toxicity, nutrient binding/malabsorption
Paint chips, colored paper	Lead	Lead toxicity
Coffee grounds	Caffeine	Caffeine toxicity
Laundry/Cornstarch	Energy	Excessive weight gain
Lemons	Citric acid	Dental enamel erosion
Moth balls	Naphthalene/para-dichlorobenzene	Toxicity, hemolytic, anemia

Appendix M

KILOCALORIES EXPENDED PER 20 MINUTES OF ACTIVITY

Body Weight (lbs.):		125	150	175	200	250
Activity:	Walking 2 mph	58	70	80	92	116
	4 mph	104	124	144	162	204
	Running 5.5 mph	180	216	250	284	356
	Biking 5.5 mph	84	100	116	134	166
	Shoveling snow	130	156	178	200	260
	Mowing lawn (power mower)	68	82	94	106	134
	Volleyball	86	102	130	150	188
	Bowling	112	134	156	180	222
	Golfing	66	80	96	110	136
	Racquetball	150	180	208	234	288
	Skiing: downhill	160	192	224	256	320
	cross country	196	234	276	316	388
	Swimming: crawl (20yd/min)	80	96	112	126	160
	Tennis	112	134	160	184	230

Modified from:

1. Brownell K: The Partnership Diet Program. Rawson-Wade, New York, 1980.

2. Kuntzleman C: Activetics - The Diet Free Way to Lose Pounds and Inches. P. H. Wyden, New York, 1975.

Appendix N

RISKS ASSOCIATED WITH SUBSTANCE USE IN PREGNANCY

SUBSTANCE	PERINATAL	INFANCY/CHILDHOOD	NUTRITION
ALCOHOL	Abruptio placentae Spontaneous abortion Stillbirth Prematurity Impaired placental oxygen, nutrient transfer Intrauterine growth retardation (IUGR) Congenital malformations	Failure to thrive (FTT) Neurobehavioral abnormalities Mental retardation Fetal Alcohol Syndrome	Appetite suppression Decreased maternal weight gain Inefficient energy utilization Impaired absorption/increased excretion: amino acids, fat, vitamin B_6, folate, zinc, thiamin
AMPHETAMINES/-METHAMPHETAMINES		Tremors Irritability Drowsiness Feeding difficulties	Appetite suppression Decreased maternal weight gain
BARBITURATES	Intrauterine growth retardation (IUGR)	Seizures Respiratory depression	
CAFFEINE	Spontaneous abortion Lowered infant birth weight		Appetite suppression Impaired absorption/increased excretion: thiamin, zinc, iron, calcium
COCAINE/CRACK	Abruptio placentae Spontaneous abortion Stillbirth Prematurity Precipitous delivery Impaired placental oxygen, nutrient transfer Intrauterine growth retardation (IUGR) Congenital anomalies Fetal/newborn distress Cerebral infarctions	Neurobehavioral changes Sudden Infant Death Syndrome (SIDS) Seizures	Appetite suppression Decreased maternal weight gain
HEROIN	Pregnancy-induced hyper-	Seizures	

	tension Abruptio placentae Spontaneous abortion Stillbirth Intrauterine growth retardation (IUGR) Prematurity Neonatal death Intracranial hemorrhage	Irritability Poor consolability Feeding difficulties Vomiting Diarrhea Sweating	
INHALANTS	Congenital anomalies Central nervous system abnormalities	Mental retardation Growth impairment	
MARIJUANA	Prematurity Intrauterine growth retardation (IUGR) Facial anomalies Labor and delivery effects	Neurobehavioral changes	
PHENCYCLIDINE HYDROCHLORIDE (PCP'S)		Tremors Rigidity Hypersensitivity to touch and noise Developmental delay Intrauterine growth retardation (IUGR)	
TALWIN AND PYRIBENZAMINE (T'S AND BLUES)		Sudden Infant Death Syndrome (SIDS)	
TOBACCO	Abruptio placentae Spontaneous abortion Stillbirth Impaired placental oxygen-nutrient transfer Intrauterine growth retardation (IUGR) Congenital malformations	Growth deficits Impaired intellectual development Respiratory illness	Appetite suppression Decreased maternal weight gain Inefficient energy utilization

SOURCE: References Substance Use #1-10

Appendix O cont.

Habits That May Affect My Baby

Day	Am I?	Yes	No	What Kind	How Much?	Have I Cut Down?	Am I Trying?
Monday	Smoking Drinking Doing Drugs						
Tuesday	Smoking Drinking Doing Drugs						
Wednesday	Smoking Drinking Doing Drugs						
Thursday	Smoking Drinking Doing Drugs						
Friday	Smoking Drinking Doing Drugs						
Saturday	Smoking Drinking Doing Drugs						
Sunday	Smoking Drinking Doing Drugs						

THIS QUESTIONNAIRE WILL HELP YOU UNDERSTAND WHY YOU SMOKE AND HOW SMOKING AFFECTS YOU. CHECK EITHER "YES" OR "NO" TO EACH QUESTION.

		YES	NO
1.	Is it very hard for you to go a half-day without smoking?	____	____
2.	Do you have a strong craving for cigarettes?	____	____
3.	Do you feel a need to smoke a certain number of cigarettes each day?	____	____
4.	Do you smoke even when you are feeling sick?	____	____
5.	Do you often find yourself smoking a cigarette when you weren't aware of lighting one up?	____	____
6.	Do you smoke when you talk on the phone, watch TV, etc.?	____	____
7.	Do you ever go a whole day without smoking?	____	____
8.	Do you smoke more when you are angry with someone?	____	____
9.	Is smoking one of your most important pleasures in life?	____	____
10.	Does the thought of never smoking again make you feel sad?	____	____

Appendix Q-1

SMOKING QUESTIONNAIRE INTERPRETATION

QUESTIONS 1-4 SHOW CHEMICAL ADDICTION

If you answered 2 out of 4 questions "YES," you are chemically addicted to cigarettes. If you crave cigarettes and cannot go a few hours without smoking, you probably are addicted to nicotine.

Stop cold turkey.

Your first few days off cigarettes will be the hardest. After that, it will be easier.

Use some of the hints to make smoking harder for yourself in the first few days.

Nicotine chewing gum is not safe during pregnancy.

QUESTIONS 5-7 SHOW SMOKING IS A HABIT WITH YOU

You are a person who often smokes while doing other things - talking on the phone or watching TV.

After a few times of smoking with another activity, this activity will trigger your desire to smoke.

Use some of the hints listed under "instead of smoking" to help you break your habit of smoking.

QUESTIONS 8-10 SHOW PSYCHOLOGICAL DEPENDENCY

Psychological dependency simply means that smoking is the way you most often manage stress.

You may feel smoking relaxes you and helps you deal with tension in your life.

Smoking cigarettes is a comfort and a "friend."

Search for new ways to deal with tension or new ways to relax. Exercise and talking with someone may help you manage stress better than cigarettes.

Appendix Q-2

SUGGESTIONS FOR QUITTING SMOKING

Make Smoking Harder for Yourself

Don't store up on cigarettes. **Never Buy a Carton**. Wait until one pack is finished before you buy another.
Smoke with the "other" hand.
Put cigarettes in an inconvenient place -- unusual pocket, bottom of a drawer, top shelf, etc.
Never carry matches or a lighter with you.
Smoke only 1/2 of each cigarette.
Give away your ashtrays.
Change your brand of cigarettes weekly so you are always smoking a brand of lower tar and nicotine content than the week before.
Never smoke after you get a craving for a cigarette until **three** minutes have passed. Do something different. Try calling an ex-smoker or somebody you can talk to until the craving goes away.
Each day try to put off lighting your first cigarette.
Decide that you will smoke only on even or odd -- numbered hours of the clock.

Instead of Smoking

If cigarettes give you an energy boost, try chewing sugarless gum or taking a brisk walk instead.
Try other activities with your hands: **doodle, sew, etc.**
Listen to a favorite tape or record.
When you feel irritable or tense, shut your eyes and do deep breathing exercises.
Drink water, eat carrots, celery or fresh fruit.
Take a shower or a bath.
Dance.
After a meal, brush your teeth right away.

Save Some Money

Make up a short list of things you have wanted.
Next to each write down the cost.
Now, convert the cost to "packs of cigarettes". If you save the money each day from the packs of cigarettes, you will be able to buy these things.
Keep the money saved in a special place.

Adopted from the American Cancer Society

Appendix Q-3

BREASTFEEDING MANAGEMENT

1. Initiation of Breastfeeding

- Encourage breastfeeding as soon after delivery as possible.
- Encourage frequent feedings to stimulate milk production and prevent engorgement (q 1-1/2 - 3 hours, 10 minutes at each breast).
- Avoid supplemental water, glucose or formula.
- Advise to awaken infant (during day) if over 3 hours since last feeding.

2. Breastfeeding Technique

- The mother is encouraged to relax in a pleasant and comfortable environment, since oxytocin release may be inhibited by stress or anxiety.
- A comfortable prone or sitting position may be used, with pillows raising the head of the infant to the height of the breast. The infant is held with the stomach facing the mother's stomach. The mother's knee of the side at which she is breastfeeding is flexed to prevent shoulder and back strain and to facilitate the infant's proper grasp of the nipple.
- The infant's cheek is touched to the nipple to induce the rooting reflex. With her opposite hand, the mother then lifts her breast, pressing back toward the chest wall with forefingers beneath the breast and thumb above. This will allow the infant (an obligate nose breather) to breathe freely, and will facilitate proper grasp of the nipple. The infant is pulled towards the chest wall so that the mouth is well upon the areola. This allows adequate milk expression and prevents nipple tenderness.
- After nursing on the first breast for approximately 10 minutes the infant is burped to expel air bubbles and placed at the second breast for the remainder of the feeding. (Suction must first be broken by placing a finger into the infant's mouth and gently pulling down on the lip before removal from the breast). Both breasts are used at each feeding to adequately stimulate milk production in each. Since the first breast is emptied more completely, the subsequent feeding is initiated at the breast at which the infant was last fed.

Appendix R

3. The mother can be assured that the infant is "getting enough milk" if the infant:
   - Actively sucks and swallows 2-1/2 hours/24 hours.
   - Nurses at least 8 times/24 hours.
   - Wets 6-8 diapers/24 hours.
   - Has at least 1 stool every other day.
   - Is growing appropriately.

4. **Prevention/Management of Common Problems**

Engorgement

- Prevention - Advise client to:
  *Initiate breastfeeding as soon as possible.
  *Feed on demand (frequent, short intervals).
  *Avoid supplemental feedings until lactation is well established.
  *Avoid skipping feedings unless a breast pump (eg. Kaneson-Marshall) or manual expression is used.
- Management - Advise client to:
  *Breast feed more frequently.
  *Use warm, moist heat packs.
  *Take a warm shower, followed by breast massage.
  *Hand express or pump until breast is soft enough for infant to grasp nipple properly.
  *Use aspirin.

Nipple Tenderness

- Prevention - Advise client to:
  *Use correct feeding position (infants mouth well onto areola).
  *Break suction before removing infant from breast.
  *Bathe/shower daily using plain water only on breasts (no soap or alcohol-based products).
  *Expose nipples to air after feedings.
  *Do not allow infant to "chew" on nipples (use Nuk pacifier for non-nutritive sucking).
- Management - Advise client to:
  *Change nursing position to alter stress points on nipple.
  *Initiate feeding on least sore breast.
  *Use breast massage; manual expression or breast pump to initiate milk ejection reflex.
  *Feed for 10 minutes per side only.
  *Expose nipples to air 15-20 minutes after feedings.

Appendix R cont.

*Expose nipples to sunlight, heat lamp, 75 watt bulb, or blow dryer 2-3 times per day.
*Use cream such as A & D ointment, or pure lanolin.

- Mastitis - Advise client to:
  *Continue nursing at infected breast.
  *Use warm, moist heat packs.
  *Nurse more frequently.
  *Comply with antibiotic therapy.
- Breast Abscess
  *Incise; drain.
  *Advise client to discontinue breastfeeding 24-36 hours at affected breast (nurse at other breast, use manual expression or breast pump at affected breast to keep up milk supply).

5. **Breast Massage**
After washing hands with soap and water, client places both hands around the breast close to the chest wall, with thumbs together at the top of the breast and fingers cupped beneath it. The hands are then moved with gentle, steady pressure up to the areola.

6. **Manual Expression**
After washing hands with soap and water, the middle and forefingers are placed around the inner edge of the areola and brought together with a rhythmic motion, pressing back towards the chest wall.

7. **Partial Breastfeeding (returning to work, etc.)**
Advise client to breast feed before and after time away from infant; hand express or pump during the day and keep refrigerated. (Breast milk can be kept refrigerated for 24-48 hours; frozen for 3 months).

8. **Weaning:**
Advise client to wean gradually, substituting the infant's least favorite feeding first with formula feeding. Wait 3-7 days between additional substitutes.

Appendix R cont.

BEHAVIOR MODIFICATION TECHNIQUES

Elimination Steps:

- Make eating a pure activity (restrict to one place and do nothing else).
- Avoid the purchase of and contact with problematic foods (allow family members to take own sweets, do not shop when hungry, use grocery list, clear plates directly into the garbage).
- Make problematic eating as difficult as possible (limit food to that which requires preparation, return food to storage area prior to eating prepared food).

Suppression Steps:

- Have others monitor eating.
- Minimize contact with food (store food in opaque containers, avoid placing serving dishes on table, leave table after meals).
- Make small portions of food appear larger (use small plate, spread food out).
- Control deprivation states (plan regular meals, avoid fatigue, hunger, anxiety or depression).

Strengthening Steps:

- Make allowable foods available.
- Save allowed foods for snacks.
- Eat slowly (put fork down between bites, chew food thoroughly).

Modified from:

Stuart R, Davis B: Slim Chance in a Fat World. Behavioral Control of Obesity. Champaign, Il., Research Press, 1972.

Appendix S

U. S. Public Health Service
Region V
105 West Adams Street
Chicago, Illinois 60603